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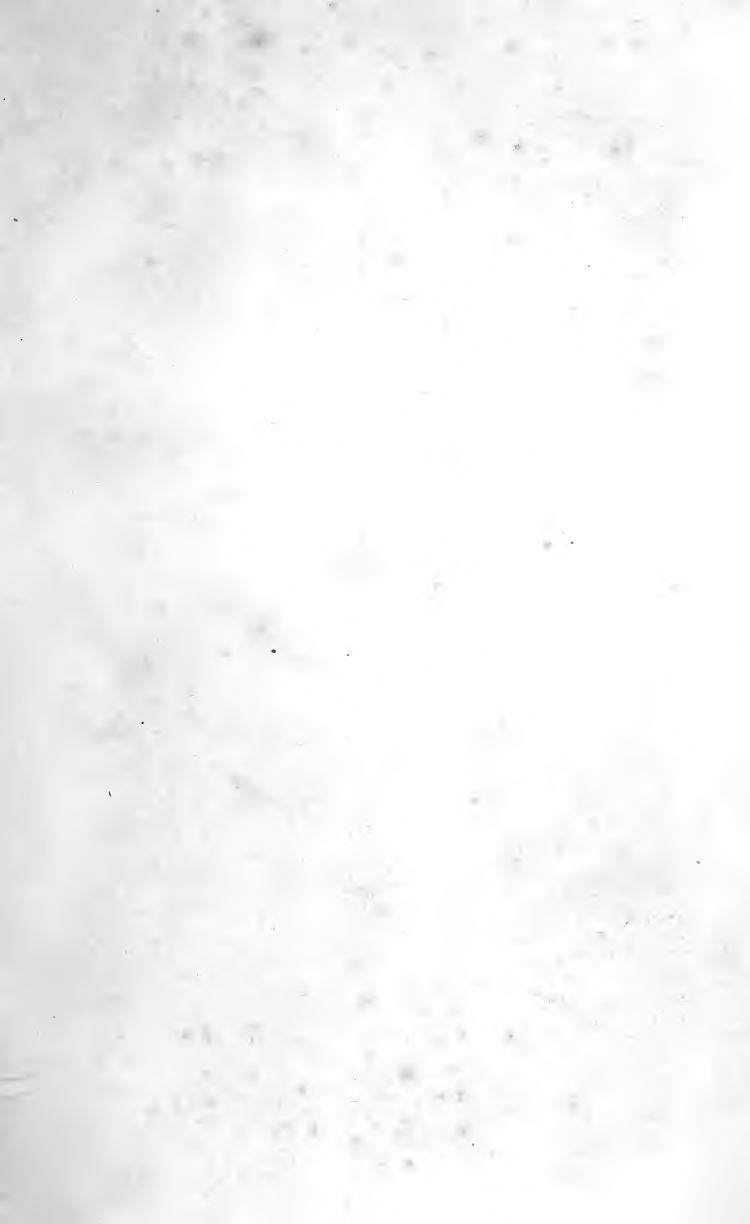


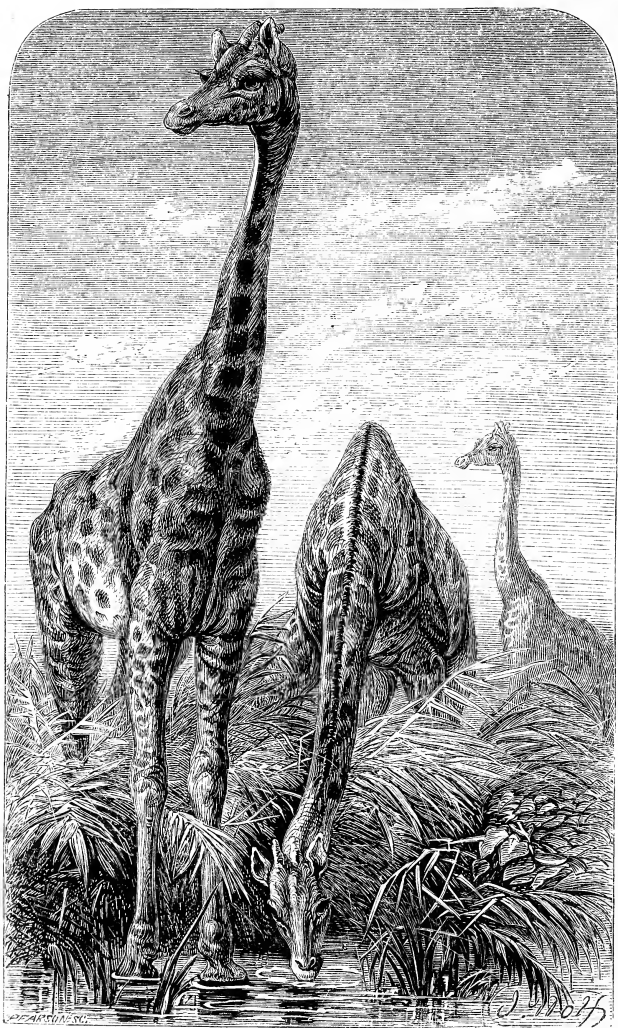
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The Giraffe. (*Camelopardalis Giraffa*.)

EXCELSIOR :

HELPS TO PROGRESS

IN

RELIGION, SCIENCE, AND LITERATURE.

“Forgetting those things which are behind, and reaching forth unto those things which are before.”—*Philippians*, iii. 13.

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EXCELSIOR.

A NEW YEAR.

THERE is something very insidious in the lapse of time. When we pass the frontiers of a new country they stop us at once and demand our passport. They look to see whence the traveller has come and whither he is going ; and everything reminds us of the transition. The dress of the people is peculiar. Their language is strange. The streets and houses, the conveyances, the style of everything is new. And often the features of the landscape are foreign. Unwonted crops grow in the fields, and unfamiliar trees stand in the hedge-rows, and quaint and unaccountable creatures flit over our head or hurry across our path. And at any given moment we have only to look up, in order to remember, " This is no more my native land ; this is no longer the country in which I woke up yesterday."

But marked and conspicuous as is our progress in *space*, we recognise no such decided transitions in our progress through *time*. When we pass the frontiers of a new year, there is no one there with authority to demand our passport ; no one who forcibly arrests us, and asks, Whence comest thou ? or, Whither art thou going ? Art thou bound for the Better Country, and hast thou a safe conduct in the name of the Lord of the land ? But we just pass on—'53, '54, '55—and every year repeats, *We* demand no passport ; be sure you can show it at the journey's end, for it is certain

to be needed there. And as nothing stops us at the border, so in the new year itself there is nothing distinguishable from the year that went before. The sun rises and the sun sets. Our friends are around us all the same. We ply our business or amusements just as we did before, and all things continue as they were. And it is the same with the more signal epochs. The infant passes on to childhood, and the child to youth, and the youth to manhood, and the man to old age, and he can hardly tell when or how he crossed the boundary. On our globes and maps we have lines to mark the parallels of distance—but these lines are only on the map. Crossing the equator or the tropic, we see no score in the water, no line in the sky to mark it; and the vessel gives no lurch, no alarum sounds from the welkin, no call is emitted from the deep: and it is only the man of skill, the pilot or the captain, with his eye on the signs of heaven, who can tell that an event has happened, and that a definite portion of the voyage is completed. And so far, our life is like a voyage on the open sea, every day repeating its predecessor—the same watery plain around and the same blue dome above—each so like the other that we might fancy the charmed ship was standing still. But it is not so. The watery plain of to-day is far in advance of the plain of yesterday, and the blue dome of to-day may be very like its predecessors, but it is fashioned from quite another sky.

However, it is easy to see how insidious this process is, and how illusive might be the consequence. Imagine that in the ship were some passengers—a few young men, candidates for an important post in a distant empire. They may reasonably calculate on the voyage lasting three months or four; and, provided that before their arrival they have acquired a certain science, or learned a competent amount of a given language, they will instantly be promoted to a lucrative and honourable appointment. The first few days

are lost in the bustle of setting all to rights, in regrets, and plans, and projects. But at last one or two settle down in solid earnest, and betake themselves to the study of the all-important subject, and have not been at it long till they alight on the key which makes their after progress easy and delightful. To them the voyage is not irksome, and the end of it is full of expectation. But their comrades pass the time in idleness. They play cards, and smoke, and read romances, and invent all sorts of frolics to while away the tedium of captivity; and if a more sober companion venture to remonstrate, they exclaim, "Lots of time! Do you see any signs of land? True, we have been out of port six weeks; but it does not feel to me as if we had moved a hundred miles. Besides, man, we have first to pass the Cape, and after that we may manage very well." And thus on it goes, till one morning there is a loud huzza, and every passenger springs on deck. "Land a-head!" "What land?" "Why the land to which we all are bound." "Impossible; we have not passed the Cape." "Yes, indeed; but we did not put in there. Yonder is the coast. We shall drop anchor to-night, and must get on shore to-morrow." And then you may see how blank and pale the faces of the loiterers are. They feel that all is lost. One takes up the neglected volume, and wonders whether anything may be done in the remaining hours; but it all looks so strange and intricate, that in despair he flings it down. "To-morrow is the examination-day. To-morrow is the day of trial. It is no use now. I have played the fool, and lost my opportunity:" whilst their wiser friends lift up their heads with joy, because their promotion draweth nigh. With no trepidation, except so much as every thoughtful spirit feels when a solemn event is near, without foreboding and without levity, they look forth to the nearer towers and brightening minarets of that famed city, which

has been the goal of many wishes, and the home of many a dream. And as they calmly get ready for the hour of landing, the only sorrow that they feel is for their heedless companions, who have lost the returnless opportunity to make their calling and election sure.

So, dear reader, in this barque of earthly existence we are floating onwards to the great eternity; and there is a certain lesson given us to learn in order to secure a welcome and a high promotion whenever we arrive. But from the subtle illusion already indicated, few address themselves to that great study betimes. Few so "number their days as to apply their hearts to heavenly wisdom." Each day looks so like the other,—yesterday as life-like as the day before, and the present day as hale and hopeful as either, that it becomes quite natural to say, "To-morrow will be as this day, and much more abundant." And so the golden moments glide away. One is constantly adjusting his berth, and finds new employment every day in making it more comfortable or more complete; and he will perhaps be so engaged the night when the anchor drops and the sails are furled. And many more amuse themselves. They take up the volume which contains the grand lesson, and look a few minutes at it, and put it past, and skip away to some favourite diversion; whilst they know full well, or fear too sadly, that they have not reached the main secret yet.

Our great business is to get acquainted with God, and so to become fit for His presence in the realms of light and purity. His friendly disposition He has announced in the Gospel of His grace; and when that announcement has subdued us into love and obedience, we are new creatures. As soon as we can say, "I know whom I have believed, and I am persuaded that He is able to keep that which I have committed unto Him," a dreadful burden will be removed

from our conscience, and it will be no longer with an anxious foreboding that we shall contemplate the end of the voyage. The announcement, that we this day cross another parallel, need cause us no perturbation; and, waking from this night's slumber, should we hear the hurrying footsteps and unfamiliar voices which bespeak the vessel come to port, we may calmly arise and make ready, for our Friend is there already, and has prepared a place for us, and we shall find it all home-like and congenial.

When the late Treasurer of the London Missionary Society, Mr. Harcastle, found himself dying, he said, "My last act of faith I wish to be, to take the blood of Jesus as the high-priest did when he entered behind the veil, and when I have passed the veil I would appear with it before the Throne." And in making the transit from one year to another, this is our most appropriate exercise. We see much sin in the retrospect,—we see many a broken purpose, many a misspent hour, many a rash and unadvised word; we see much pride and anger, and worldliness and unbelief; we see in the year now ended many offences against our neighbour and our God. Let us carry them to the Fountain opened for sin. There is nothing for us but the Great Atonement. With that atonement let us, like believing Israel, end and begin anew. To its sin-canceling expiation let us consign the guilty past; and, bearing its precious blood, let us pass within the veil of a solemn and eventful future.

For that future, too, this is the time to form and to commence carrying out better resolutions. There may be good plans which the reader has long entertained, but which, from the want of a decisive beginning, are likely to result in nothing. You have sometimes thought that it would be very profitable to read the Bible right through. You have long been unhappy because there is no worship of God in your family.

You have often felt that it would be right to conduct a class in the Sunday-school, or to visit a few of your poorer neighbours. There is some bad habit which you are always intending to leave off,—some good one which you are always going to begin. Now is the day. Remembering on whose help and blessing it is that you depend for the ability to carry through the best purposes, make this “beginning of days” the beginning of your better doing.

There is, doubtless, some danger in the keeping of a diary; but there is one form of it which is surely exempt from the usual risks of spiritual pride and morbid self-anatomy. And on the same principle on which frugal householders keep a memorandum of how they spend their money, it might be well for all of us to keep a written record of the way in which we spend a talent more precious still. It would be a constant reminder of our good resolutions, and the blanks in the register, by rebuking our indolence, would stir us up to fresh exertions in redeeming the time. And it would teach us the value of a commodity which all of us prize too lightly. Nothing is more wonderful than the infatuation with which we waste it. Were you following a man along the streets, and did you see him scattering coin in every direction,—tossing half-pence to all the passengers, and chucking sovereigns into the Thames or the kennel, you would say, “The man is mad:” and even if an acquaintance told you, “He is very rich,” you would answer, “He may be as rich as Croesus, but at this rate he will soon be a beggar.” But here is a man quite as reckless of the golden hours and silver minutes. Not that he spends them in the tavern; not that he spends them in drink and dissipation; not that he spends them in heaping up treasure in hell. But he spends them on no noble pursuit; he converts them into no enduring equivalent. Every evening he has his modicum of leisure; the hours

which, by continuous thrift, might make him a scholar, or an adept in the sciences, or which might go far to build up his intellectual and spiritual manhood, he wastes on trifles and tomfoolery. Young though he is, so fast is he squandering his heritage of existence, you foresee that he must die in dreariest poverty. But just as a spendthrift has sometimes been startled into a miser by realising the worth of money, so the life-waster has occasionally been cured of his reckless profusion by seeing the splendid results achieved through time's good husbandry. And just as the miser loves to count his coin, and as his accurate reckoning tends to make him still more frugal and more wealthy, so there is wisdom in "counting our days," and in preserving that record of their bestowment which, by rendering time a palpable commodity, at the same time enhances its value. That time which we call our own is an awful stewardship; and it is surely worth while, for our own admonition, to take some note of what is so exactly recorded elsewhere.

"Like summer-bees that hover
Around the idle flowers;
They gather every act and thought,
These viewless angel hours.

"The poison or the nectar,
The heart's deep flower-cups yield;
A sample still they gather swift,
And leave us in the field.

"And as we spend each minute,
Which God to us hath given,
The deeds are known before His Throne,
The tale is told in heaven.

"These bee-like hours we see not,
Nor hear their noiseless wings;
We only feel too oft when flown,
That they have left their stings."*

J. H.

* Cranch.

ON INSTINCT.

AMONG all the subjects connected with Natural History, there is not one more interesting than the subject of Animal Instinct, forming, as it does, a link, and presenting a point of contact, between Zoology and that branch of Philosophy which has relation to the human mind. And yet, if we were to judge of the interest it excites, from the degree of information brought to bear upon the subject in existing books, it might be supposed to be very faint; at least, not strong enough to lead to any attempt at a philosophic or systematic view of it. We have, indeed, in many books interesting descriptions of different instincts, curiously illustrated by well-authenticated facts. We have much of important and interesting characteristics of instinct; but a Treatise on Instinct is still a desideratum. It is, however, far more easy to point out a want than to supply it; and, therefore, my hope in presenting some thoughts on the subject, is rather to call attention to the want than to meet it; my object being to propose questions for consideration, without presuming to think I can answer them satisfactorily, either to others or to myself. But in the pursuit of knowledge, the next best thing to satisfaction is *unsatisfaction*—the learning to be dissatisfied with the extent of knowledge attained from perceiving how much there is to be known, to be studied, and to be enquired into.

And first,—What is meant by Instinct? It is in general rather implied and supposed, than distinctly laid down, that a being is acting instinctively when impelled blindly towards some end which the agent does not aim at or perceive; and on the other hand, that it is acting rationally when acting with a view to, and for the sake of, some end which it *does* perceive. But in the ordinary language even of Naturalists, and even when they are describing and recounting instances

of instincts, and asserting, as many are accustomed to do, that Brutes are actuated by Instinct, and Man by Reason, we often meet with much that has the appearance, at least, of being very inconsistent with such a view.

When I speak of Animal-Instinct, it should be remembered that I include Man ; for, although it is a fact frequently forgotten by many, yet it is a fact, that Man is an animal. Man possesses instinct, though in a lower degree than most other animals ; his inferiority being compensated by his superiority in other respects. And, again, as Man possesses instinct in a lower degree than the brutes, so, in a lower degree than Man, brutes—at least the higher brutes—possess reason. As some things felt and done by Man are allowed to be instinctive,—hunger and thirst, for instance, are evidently instincts, not less in the adult than in the new-born babe—so, many things done by brutes, would be, if done by man, regarded as resulting from the exercise of reason, being not only the same acts, but done to all appearance from the same impulse as the rational acts of man : such things, for instance, as brutes *learn* to do, either by their own unaided experience, or as taught by man. *Docility* is evidently characteristic of reason. To talk of an elephant, a horse, or a dog, doing by instinct such things as it has been *taught*, would be as absurd as to talk of a child's learning to read and write by instinct.

But, moreover, brutes are, in many instances, capable of learning even what they have not been taught by man. They have been found able to combine, more or less, the means of accomplishing a certain end, from having learned by experience that such and such means so applied would conduce to it. The higher animals, of course, show more of reason than the lower. There are many instances of its existence in domestic animals.

The dog is regarded as the animal most completely man's

companion ; and I will mention one, out of many specimens of the kind of reason to which I refer, as exhibited in a dog. This dog, being left on the bank of a river by his master, who had gone up the river in a boat, attempted to join him. He plunged into the water, but not making allowance for the strength of the stream, which carried him considerably below the boat, he could not beat up against it. He landed, and made allowance for the current of the river, by leaping in at a place higher up. The combined action of the stream, and his swimming, carried him in an oblique direction, and he thus reached the boat. Having made the trial, and failed, he apparently judged, from the failure of the first attempt, that his course was to go up the stream, make allowance for its strength, and thus gain the boat.

There is another instance of this nature which did come under my own observation, and is more worthy of being recorded, because the actor was a cat,—a species of animal which is considered, generally, very inferior in sagacity to a dog. This cat lived many years in my mother's family, and its feats of sagacity were witnessed by her, my sisters, and myself. It was known, not merely once or twice, but habitually, to ring the parlour bell whenever it wished the door to be opened. Some alarm was excited on the first occasion that it turned bell-ringer. The family had retired to rest, and in the middle of the night the parlour bell was rung violently: the sleepers were startled from their repose, and proceeded down-stairs, with pokers and tongs, to interrupt, as they thought, the predatory movement of some burglar; but they were agreeably surprised to discover that the bell had been rung by Pussy, who frequently repeated the act whenever she wanted to get out of the parlour.

These are two clear cases of acts done by a cat and dog, which, if done by a man, would be called Reason. Every one would admit that the actions were rational—not, to be

sure, proceeding from a very high exertion of intellect ; but the dog, at least, rationally jumped into the stream at a distance higher up from the boat, into which he wished to get, because he found that the stream would thus carry him to it, instead of from it ; and the cat pulled the parlour bell, because she had observed that when it was rung by the family, the servant opened the door. Without entering into the inquiry, What is called Reason, or what is denominated Instinct, I would only say, that it is quite clear that if such acts were done by man, they would be regarded as an exercise of reason ; and I do not know why, when performed by brutes, evidently by a similar mental process, as far as can be judged, they should not bear the same name. To speak of a cat's having an instinct to pull a bell, when desirous of going out at the door, or of an elephant's lifting up a cannon, or beating down a wall, at his driver's command, by instinct, would be to use words at random.

On the other hand, hunger and thirst are as instinctive in man as in brutes. An invalid, indeed, when taking food without appetite, does not act upon instinct ; he acts upon reason, which tells him that unless he eat, his strength would not support the disease under which he labours ; but the man who eats when he is hungry, and drinks when he is thirsty, acts as truly from instinct as the new-born babe when it sucks.

It appears, then, that we can neither deny reason, universally and altogether, to brutes, nor instinct to man ; but that each possesses a share of both, though in very different proportions. And now a question naturally arises—a question which we propose, but do not presume positively to decide — “What is the difference between man and the higher brutes ?” We have already decided, in reference to *one* point, what the difference does *not* consist in. It is not that brutes are wholly destitute of everything that, in man, we

call reason. Instances to the contrary, similar to what have been above mentioned, might be produced to a great extent. But this would be superfluous; because, as has been said, the *docility* of many brutes is familiar to all; and if any one could seriously speak of teaching anything to a being wholly devoid of *reason*, he would evidently be using the word in some sense quite different from that in which it is ordinarily employed.

And yet, the difference between man and brute, in respect of intelligence, appears plainly to be not a difference in mere *degree*, but in *kind*. An intelligent brute is not like a stupid man. The intelligence and sagacity shown by the elephant, monkey, and dog, are something very different from the lowest and most stupid of human beings. It is a difference in kind, not merely in degree.

It strikes me that in all the most remarkable instances in which brutes display reason, all the intellectual operation seems to consist in the *adaptation of means to an end*. The dog who swam from a higher part of the river to reach the boat; the cat who rang the bell to call the servant; the elephant, of whom we have read, that was instructed by his keeper off hand, to raise himself from a tank into which he had fallen, by means of faggots thrown into him by the keeper, on which the elephant raised himself from the pit, and from which all the windlasses and cranes in the Indian empire could not have extricated him; the monkey in the Zoological Gardens, who used to possess himself of a nut placed beyond the reach of his paw, by doubling a straw, and casting this round it, by which means he was enabled to draw it towards him: these, and many other similar instances of sagacity, appear to consist in the adaptation of means to an end.

But the great difference between man and the higher brutes, appears to me to consist in the power of using SIGNS

—arbitrary signs—and *employing language as an instrument of thought*. We are accustomed to speak of language as useful to man, to *communicate* his thoughts. I consider this as only *one* of the uses of language. That use of language which, though commonly overlooked, is the most characteristic of man, is as an instrument of thought. Man is not the only animal that can make use of language to express what is passing within his mind, and that can understand, more or less, what is so expressed by another. Some brutes can be taught to utter, and many others to understand, more or less imperfectly, sounds expressive of certain emotions. Every one knows that the dog understands the general drift of expressions used; and parrots can be taught not only to pronounce words, but to pronounce them with some consciousness of the general meaning of what they utter. We commonly speak, indeed, of “Saying so-and-so by rote, as a parrot;” but it is by no means true that they are quite unconscious of the meaning of the sounds. Parrots do not utter words at random, for they call for food; when displeased, scold; and use expressions in reference to particular persons which they have heard applied to them. They evidently have some notion of the general drift of many expressions which they use. Almost every animal which is capable of being tamed, can, in some degree, use language as an indication of what passes within. But no animal appears to be capable of another very important use of language, which does characterise Man—namely, the employment of “common terms,” (“general terms”) formed by abstraction, as *instruments of thought*; by which alone a *train of reasoning* may be carried on.

And accordingly, a deaf-mute, before he has been taught a language,—either the finger-language, or reading,—cannot carry on a train of reasoning any more than a brute. He differs, indeed, from a brute in possessing the mental

capability of employing language ; but he can no more *make use* of that capability till he is in possession of some *system* of *arbitrary general signs*, than a person born blind from cataract can make use of his capacity of seeing till the cataract is removed. Hence, it will be found by any one who will question a deaf-mute, who has been taught language after growing up, that no such thing as a train of reasoning had ever passed through his mind, before he was taught. There is a remarkable circumstance in reference to this point, mentioned in the interesting accounts of the now well-known case of the American girl, Laura Bridgeman, who having been from birth, not only deaf and dumb, but also blind, was taught the finger-language, and to read what is printed in raised characters, and also to write. When she is alone, her *fingers are generally observed to be moving*, though the signs are so slight and imperfect that others cannot make out what she is thinking of. But if they inquire of her, she will tell them. It seems that having once learnt the use of signs, she feels the necessity of them as an instrument of thought, when thinking of anything beyond mere individual objects of sense. And, doubtless, every one else does the same.

This apparent incapability of employing abstraction is also observable in the fact, that even the most intelligent brutes seem unable to form any distinct notion of *number* ; to do which evidently depends on abstraction. For, in order to *count* any object, you must withdraw your thoughts from all *differences* between them, and regard them simply as *units*. And accordingly, the savage tribes (who are less removed than we are from the brutes) are remarked for a great deficiency in their notions of *number*. Few of them can count beyond ten, or twenty ; and some of the rudest savages have no words to express any number beyond five.

It appears, then, that there are certain kinds of intel-

lectual power—of what, in Man, at least, is always called Reason—common to a certain extent, to Man with the higher brutes. And again, that there are certain powers wholly confined to Man—especially all those concerned in what is properly called Reasoning—all employment of language as an instrument of thought; and it appears that instinct, again, is to a certain extent, common to Man with brutes, though far less in amount, and less perfect in Man; and more and more developed in other animals, the lower we descend in the scale of creation. Insects far surpass, in this respect, the more intelligent brutes. The architecture of many of them is far more complicated and curious than that of the bird or the beaver;—and they not only construct receptacles for their young, but, in many instances—that of the bee among others—store up in them a supply of food of a totally different kind from that they subsist on themselves.

But of all these wonderful provisions of instinct in the insect-world, there is not, perhaps, a more remarkable phenomenon than one which has often occurred to my mind, as presenting a curious analogy with the condition of some of our race, in regard to the preparation for a future life. Most persons know that every *butterfly* (the Greek for which, it is remarkable, is the same that signifies also the soul—*Psyche*) comes from a grub or caterpillar, in the language of naturalists called a *larva*. The last name (which signifies literally a mask) was introduced by Linnæus, because the caterpillar is a kind of outward covering, or disguise of the future butterfly within. For, it has been ascertained by curious microscopic examination, that a distinct butterfly, only undeveloped and not full grown, is contained within the body of the caterpillar; that this latter has its own organs of digestion, respiration, &c., suitable to its larva-life, quite distinct from, and independent of, the future butterfly which it encloses. When the proper period arrives, and the

life of the insect, in this its first stage, is to close, it becomes what is called a pupa, enclosed in a chrysalis or cocoon (often composed of silk, as is that of the silk-worm which supplies us that important article), and lies torpid for a time within this natural coffin, from which it issues, at the proper period, as a perfect butterfly.

But sometimes this process is marred. There is a numerous tribe of insects, well known to naturalists, called Ichneumon-flies, which in their larva state are *parasitical*; that is, inhabit, and feed on, other larvæ. The Ichneumon-fly being provided with a long sharp sting, which is in fact an *ovipositor* (egg-layer), pierces with this the body of a caterpillar in several places, and deposits her eggs, which are there hatched, and feed, as grubs (larvæ) on the inward part of their victims. A most wonderful circumstance connected with this process is, that a caterpillar which has been thus attacked goes on feeding, and apparently thriving quite as well during the whole of its larva-life, as those that have escaped. For, by a wonderful provision of instinct, the Ichneumon-grubs within do not injure any of the organs of the larva, but feed only on the future butterfly inclosed within it. And consequently, it is hardly possible to distinguish a caterpillar which has these enemies within it from those that are untouched. But when the period arrives for the close of the larva-life, the difference appears. You may often observe the common cabbage caterpillars retiring, to undergo their change into some sheltered spot—such as the walls of a summer-house; and some of them—those that have escaped the parasites—assuming the pupa-state, from which they emerge butterflies. But as for the others, the ichneumon-grubs at this period issue forth, and spin their little cocoons of bright yellow silk (about the size and shape of grains of wheat), from which they are to issue as flies. Of the unfortunate caterpillar that has been preyed

upon, nothing remains but an empty skin. The hidden butterfly has been secretly consumed. Now is there not something analogous to this wonderful phenomenon in the condition of some of our race? May not a man have a kind of secret enemy within his own bosom destroying his soul,—*Psyche*,—though without interfering with his *well-being during the present stage* of his existence, and whose presence may never be detected till the time arrives when the *last great change* should take place? Every man should reflect whether this may not be his case, remembering that it is in his power now, through the help that is promised, to detect and destroy these secret but deadly enemies within him!

There are many cases in which it cannot be ascertained towards what the immediate impulses of animals tend. We do not know through the medium of what organs birds are induced to put food into the mouths of their young. We see a pair of birds searching all day long for food; and, in many instances, the food they seek is such as they do not feed on themselves—for example, granivorous birds hunt after caterpillars for their young: in other cases they seek for food which their own appetite incites them to eat; but they treasure it for their young, and are impelled by an instinctive appetite to put it into its mouth when opened. And this instinct is not peculiar to birds. The mammalia partake of it; for we find wolves, dogs, and other carnivorous animals bringing home meat, and leaving it before their young ones. If a bitch or wolf has pups, and cannot bring food to them otherwise than by first swallowing it, she swallows it, and then disgorges it; for the animal has the power of evacuating its stomach at pleasure. Pigeons invariably swallow their food before they give it to their young. Take the case of migratory birds—even those which have been caged: when a particular season arrives, they desire to fly in a certain direction; but what leads them in

that direction cannot be understood. That direction is pointed out to them by God; but how pointed out is only known to Him.

The *combination* of physical laws, with *instincts adapted* to them, is one of the most interesting and important points dwelt on by the many able authors who have treated of Natural Theology. One instance out of many, of this principle, may be taken as a sample—that of the instinct of suction, as connected with the whole process of rearing young animals. The calf sucks, and its mother equally desires to be disburthened of its milk. Thus, there are two instincts tending the same way. Moreover, the calf has an appetite for grass also; it takes hold of the grass, chews and swallows it; but it does not bite, but sucks the teat. But it is also necessary that there should be a physical adaptation of the atmosphere to the instinct of the animal. It is the pressure of the atmosphere upon the part, and the withdrawal of that pressure within the young animal's mouth, which forces out the milk. Here is an adaptation of instinct to the physical constitution of the atmosphere. Yet, again, all this would be insufficient without the addition of that *storgé*, or instinctive parental affection which leads the dam carefully to watch and defend its young. The most timid animals are ready to risk their lives, and undergo any hardships, to protect their young, which is a feeling quite distinct from the gratification felt by the dam from her offspring drawing her milk. Here, then, are several instincts, and the adaptation of the atmosphere to one of those instincts, all combining towards the preservation of the species; which form, in conjunction, as clear an indication of design as can be conceived. It is hardly possible to conceive any plainer mark of design, unless a person were beforehand to say, that he intended to do a certain thing. Yet this is not all; for the secretion of milk is not

common to both sexes, and at all ages and all times. Here is the secretion of milk at a particular time, just corresponding with the need for it. If we found sickles produced at harvest, fires lighted when the weather is cold, and sails spread when favourable winds blow, we should see clearly that these things were designed to effect a certain end or object. Now, in the case of the mother and the young, there is a secretion of milk at a particular period, and in an animal of a distinct sex—the one which has given birth to the young. Yet the perpetuation of the species might take place, if the milk had been provided so as to be constant in all ages and sexes. But what we do see is, means provided for an end, and just commensurate to that end.

And if the study of instincts, strictly so called—those wholly unconnected with anything rational in the agent—brings to light such countless traces of divinely-wise contrivance, a no less admirable monument of the Creator's stupendous wisdom is to be found in the provision He has made for the *progress of Society* in the operation in human agents of impulses which, while tending immediately to some certain end contemplated by the agent, and therefore rational, may yet, as far as respects another and quite different end he did *not* contemplate, be considered as, in some sort, instinctive. For instance, a man may be deliberately taking means to provide food for the gratification of his hunger, without having any other object in view, while he is probably at the same time, and by the same act, promoting another object,—the preservation of his life, health, and strength; which object, by supposition, he was not thinking about. His acts, therefore, are in reference to the preservation of life,—analogous, at least, to those of instinct; though, in reference to the object he was contemplating—the gratification of hunger—they are the result of deliberate calculation.

There are many portions of man's conduct, especially

as a member of society, to which this kind of description will apply; and these are often attributed to human forethought and design, while they might, with greater truth, be referred to a kind of instinct, or something analogous to it, which leads him, while doing one thing by chance for his own benefit, to do another undesignedly, under the guidance of Providence, for the service of the community.

But there is nothing in which this providential guidance is more liable to be overlooked—no case in which we are more apt to mistake for the wisdom of man what is, in truth, the wisdom of God.

In the results of instinct in brutes, we are sure not only that although the animals themselves are, in some sort, agents, they could not originally have designed the effects they produce, but that even afterwards they have no notion of the combination by which these are brought about. But when *human* conduct tends to some desirable end, and the agents are competent to perceive that the end *is* desirable, and the means well adapted to it, they are apt to forget that, in the great majority of instances, those means were not devised, nor those ends proposed, by the persons themselves who are thus employed. The workman, for instance, who is employed in casting printing-types, is usually thinking only of producing a commodity by the sale of which he may support himself; *with reference to this object* he is acting, not from any impulse that is at all of the character of instinct, but from a rational and deliberate choice: but he is also in the very same act contributing most powerfully to the diffusion of knowledge, about which, perhaps, he has no anxiety or thought; *in reference to this latter object*, therefore, his procedure corresponds to those operations of various animals which we attribute to instinct; since *they*, doubtless, derive some immediate gratification from what they are doing. Indeed, in all departments connected with the acquisition

and communication of knowledge, a similar procedure may be traced. The greater part of it is the gift, not of human, but of divine benevolence, which has implanted in man a thirst after knowledge for its own sake, accompanied with a sort of instinctive desire, founded probably on sympathy, of communicating it to others as an ultimate end. This, and also the love of display, are no doubt inferior motives, and will be superseded by a higher principle, in proportion as the individual advances in moral excellence. These motives constitute, as it were, a kind of scaffolding, which should be taken down by little and little, as the perfect building advances, but which is of indispensable use till that is completed.

It is to be feared, indeed, that Society would fare but ill if none did service to the public, except in proportion as they possessed the rare moral and intellectual endowment of an enlightened public spirit. For such a spirit, whether in the form of patriotism, or in that of philanthropy, implies not merely *benevolent feelings* stronger than, in fact, we commonly meet with, but also powers of *abstraction* beyond what the mass of mankind *can* possess. As it is, many of the most important objects are accomplished by unconscious co-operation; and that, with a certainty, completeness, and regularity, which probably the most diligent benevolence under the guidance of the greatest human wisdom, could never have attained.

For instance, let any one propose to himself the problem of supplying with daily provisions the inhabitants of such a city as London—that “province covered with houses.” Let any one consider this problem in all its bearings, reflecting on the enormous and fluctuating number of persons to be fed,—the immense quantity of the provisions to be furnished, and the variety of the supply (not, as for an army or garrison, comparatively uniform)—the importance of a

convenient distribution of them, and the necessity of husbanding them discreetly, lest a deficient supply, even for a single day, should produce distress, or a redundancy produce, from the perishable nature of many of them, a corresponding waste ; and then let him reflect on the anxious toil which such a task would impose on a Board of the most experienced and intelligent commissaries, who, after all, would be able to discharge their office but very inadequately. Yet this object is accomplished far better than it could be by any effort of human wisdom, through the agency of men who think each of nothing beyond his own immediate interest—who are merely occupied in gaining a fair livelihood ; and with this end in view, without any comprehensive wisdom, or any need of it, they co-operate, unknowingly, in conducting a system which, we may safely say, no human wisdom directed to that end could have conducted so well—the system by which this enormous population is fed from day to day—and combine unconsciously to employ the wisest means for effecting an object, the vastness of which it would bewilder them even to contemplate.

I have said, “ no *human* wisdom ;” for *wisdom* there surely is in this adaptation of the means to the result actually produced. And admirable as are the marks of contrivance and design in the anatomical structure of the human body, and in the instincts of the brute creation, I know not whether it does not even still more excite our admiration of the beneficent wisdom of Providence, to contemplate, not corporeal particles, but rational, free agents, co-operating in systems no less manifestly indicating design, yet no design of theirs ; and though acted on, not by gravitation and impulse, like inert matter, but by motives addressed to the will, yet advancing as regularly, and as effectually, the accomplishment of an object they never contemplated, as if they were merely the passive wheels of a machine. If one

may, without presumption, speak of a more or less in reference to the works of Infinite Wisdom, I would say, that the branch of Natural Theology with which we are now concerned, presents to the reflective mind views even more striking than any other. The heavens do indeed “declare the glory of God;” and the human body is “fearfully and wonderfully made;” but Man, considered not merely as an organised being, but as a rational agent, and as a member of society, is perhaps the most wonderfully contrived, and to us the most interesting, specimen of Divine Wisdom that we have any knowledge of. Πολλὰ τὰ δεινὰ, καὶ οὐδέν ἀνθρώπου δεινότερόν πύλει.

One more question I would point attention to, as well worthy of inquiry—that relating to the *implanting* and *modification* of Instinct, in animals, and to what extent it is the consequence of the education received by many generations of their predecessors. The most widely diffused of all implanted and modified instincts, is that of wildness or tameness. Whether the original instinct of brutes was to be afraid of man, or familiar with him, I will not undertake to say. My own belief is, that it is the *fear* of man that is the implanted instinct. But at any rate, it is plain that *either* the one or the other—wildness *or* tameness—must be an implanted, and not an original instinct. All voyagers agree, that when they have gone into a country, which had not apparently been visited by man, neither bird nor beast exhibited fear. The birds perched familiarly upon their guns, or stood still to be knocked on the head. After the country had been for some time frequented, not only individual animals become afraid of man, but their offspring inherit that fear by instinct. The domesticated young of the cow, and the young of the wild cattle of the same species, furnish illustrations of this fact. I have seen an account of an experiment tried with respect to these latter.

In this instance, a very young calf of one of the breed of wild cattle still remaining in some of the forests in England, on seeing a man approach, lay crouching close, and preserving the most perfect stillness, apparently endeavoured to escape notice. On being discovered, it immediately put itself in an attitude of defence, commenced bellowing and butting at the intruder, with such violence that it fell forward upon its knees; its limbs, from its tender age, being yet scarcely able to support it. It rose and repeated the attack again and again, till by its bellowing, the whole herd came galloping up to its rescue. We all know how different this is from the action of a young calf of the domestic breed.

R. W.

BOYHOOD.

FRESH as an April morn—as prone to alloy
Laughter's gay sunshine with the gloom of tears,—
Voiced like a bird that in mid-heaven careers,
Pouring o'er earth high notes of love and joy,—
Rapid like it and restless, graceful, coy,—
Embarrassed still by childhood's lingering fears,
Yet full of courage, proud of heart—the boy
Shrinks from the breath of shame, and midst his peers,
Kindleth at voice of praise. 'Tis come—the hour
Sacred to culture;—now unto his soul
Exultingly expanding, as a flower
Opening its petals, is a wise control
As pruning to the plant,—as genial shower
Instruction's voice instilling truth with power.

M. B.

THE CHEMICAL POWER OF THE SUNBEAM.

PHOTOGRAPHY.

If we carefully examine the history of scientific discovery, it will be apparent that the progress of knowledge is regulated by a constant law. The time appears to be fixed when any new truth shall be born unto man. These laws are far beyond the reach of human intellect; but we are permitted to see that the Eternal One, who regulated the tides of the material ocean, has, in His infinite wisdom, fixed the extent of oscillation—the height and the depth of each mental wave, and commanded the great spiritual tide-wave of knowledge to advance in obedience to an undeviating law.

From the earliest periods of history—since man clothed himself in dyed garments—it must have been observed that some colours were darkened, whilst others were bleached, by the sun's rays. To the philosophy of this, his mental eye was obscured—the fact was constantly occurring (and a thousand facts are still for ever presenting themselves to us, unnoticed or uncared for), and man did not perceive the important bearing of the phenomenon.

Eventually, the alchemists, possessed with the idea that gold differed from silver in nothing but that it contained more of the sun's sulphur, were induced to present various compounds of silver to the sunshine, with the hope of obtaining this "*interpenetration of the sulphureous principle of light*," which was to change the baser silver to the royal gold. Thus they discovered the remarkable change already described (vol. ii. p. 402) which takes place in the sunshine on one of the salts of silver.

Eventually an Englishman, Mr. Thomas Wedgwood—the son of him who so greatly improved our porcelain manufacture—conceived it quite possible, since different-coloured media were not equally transparent to the radiant chemical power, to copy the paintings on the windows of our old churches by covering white paper or leather with the nitrate or the chloride of silver. He succeeded in his experiments, and, with the assistance of Sir Humphry Davy, extended his plan so far as to secure copies of images by the solar microscope, thus becoming the discoverer of the beautiful art of PHOTOGRAPHY. The pictures produced by Mr. Wedgwood wanted permanence. They could only be preserved in the dark. Viewed by daylight they soon became uniformly black. A few years after this a French gentleman, M. Niepce, was induced to take up the inquiry, and he made the remarkable discovery, that the solar rays altered the character of all kinds of resinous substances. He therefore spread upon plates of glass and metal a thin coating of some varnish, and placing it in the camera-obscura, allowed the beautiful images of Baptista Porta's instrument to fall upon the plate.*

These images, being the result of radiations from external objects, have relatively the amount of luminous and chemical power determined by the colours of their surfaces, and the quantity of illumination to which they are exposed. It was found, after exposure in this way, that some portions of the resinous surface were more soluble than others. The plates were consequently placed in some solvent, and thus was gradually developed “the clouded imagery” of the picture impressed upon the plate. Many of the pictures thus produced—called by their discoverer HELIOGRAPHS †—are still

* The Camera-obscura is now too well known to require a description. It was the discovery of an Italian philosopher, Baptista Porta, in the sixteenth century.

† Meaning *Sun-drawing*—a name far more happily chosen than

to be found in this country, M. Niepce, being involved in the revolutionary troubles of France, having sought safety and repose at Kew. Niepce eventually returned to Paris, and then became acquainted with Daguerre, the dioramic painter. They were both engaged in the same line of inquiry, and it was agreed that they should continue their investigations together. It is not quite easy to trace the progress made by Niepce and Daguerre, as it was not until after the death of Niepce that Daguerre announced the discovery of the process which bears his name.

During this period Mr. Henry Fox Talbot was quietly working in the same direction, and he so far improved upon the process of Wedgwood, as to give permanence to the sun-drawn pictures. Since the publication of these processes, photography has made rapid advances.

A few of the more important processes must now be described. It is difficult, within the limits allowed, to make a selection from, or to enter into the details of, the various methods by which photographs can be obtained; the most satisfactory course will be to state those general principles by which the resulting photographic phenomena may be best understood.

If silver is dissolved in nitric acid we obtain a salt—nitrate of silver. When this salt is dissolved in perfectly pure distilled water, it may be exposed to sunshine for any period without undergoing change; but add thereto the smallest portion of organic matter, and it is quickly decomposed, the silver being precipitated as a black powder. In paper we have the required organic principle, and if we wash a sheet with the solution of nitrate of silver, and expose it with any body superposed—say a fern-leaf,—all

PHOTOGRAPHY—or *Light-drawing*, modern science having shown that the chemical changes are not due to the light-producing power of the sunbeam, but to an associated *dark* principle called ACTINISM.

the parts which are exposed will blacken, those screened will remain white, and thus there will be produced what is called a *negative* image. Chloride of silver, obtained by washing the paper, first with a weak solution of common salt and then with nitrate of silver, is a far more sensitive photographic agent, and is now commonly employed.

The Calotype process of Mr. Fox Talbot consists in washing paper, first with *iodide of potassium*, and then with nitrate of silver, by which process is obtained an *iodide of silver*. The paper should contain nothing but this iodide; therefore all soluble salts are removed by soaking in water. This pale primrose-colour paper, which is not sensitive to light, is washed with a peculiar organic salt called gallic acid; and, to increase the instability of the preparation, a little nitrate of silver is added to it, producing what the inventor calls a *gallo-nitrate of silver*. Here we have a preparation already quick with chemical energy; this is applied to the iodized paper, and the chemical power of the sun, as radiated from external objects, instantly produces a change—that change bearing an exact relation to the intensity of the rays falling upon each portion of the light-created picture.

Presently a picture becomes visible, and it is increased in intensity by washing it, in the dark, with a fresh portion of the gallic acid solution. The picture thus obtained is fixed by washing it with a salt, which dissolves the iodide or the chloride of silver, which has not undergone change—the *hyposulphite of soda*—and subsequently soaking in clean water.

The Daguerreotype consists in producing an iodide of silver upon the surface of a polished silver-plate, and receiving the camera image upon this prepared surface. In both of these processes a decomposition of the iodide of silver results; but in Daguerre's process, the image is deve-

loped by exposing the plate on which it has been impressed to the vapour of mercury.

Mercury combines with metallic silver, but not with the iodide ; thus it is deposited over every portion of the plate on which the solar radiations have acted—the thickness of the deposit bearing a strict relation to the intensity of chemical effect produced. This picture is also fixed by the use of the hyposulphite of soda ; as, indeed, are nearly all varieties of photographic pictures.

By modifications, which cannot be here detailed, these processes have been greatly increased in sensibility ; the result which formerly required twenty minutes being now obtained in as many seconds.

A process more sensitive than either of those named has extended photography in a most remarkable manner—this is the COLLODION process. Collodion is gun-cotton dissolved in ether ; to this is added some iodide of potassium dissolved in spirits of wine. This iodized collodion is poured over a sheet of glass—the ether evaporating leaves a beautiful film on the surface, which, upon the glass being dipped into a solution of nitrate of silver, becomes exquisitely sensitive. This prepared tablet being placed in the camera receives an image almost instantaneously, which is brought out in full vigour by pouring over it a solution of the proto-sulphate of iron or of pyro-gallic acid.

The exquisite perfection of the collodion pictures, dependent upon the rapidity with which the images are impressed, is mainly due to the peculiar conditions of this singular preparation. By a preparation in many respects analogous to the collodion, a degree of sensibility far exceeding anything which the most sanguine photographer dreamed of in his ardent moments has been obtained. A plate prepared with albumen, iodide of iron, and alcohol, and acetic acid, was placed in a dark room of the Royal Institution in a

camera obscura ; opposite to it, at the proper focal distance, was a wheel, which was made to revolve many hundred times in a second, and this wheel carried a printed bill upon its face. This rapidly revolving placard was illuminated for a moment by a flash from a Leyden jar. When the prepared plate was examined by means of a developing agent, it was found, that notwithstanding the rapidity with which the image moved over the lens and the transient nature of the light—a picture of the printed bill was clearly formed, with the letters perfect. This was an experiment of Mr. Fox Talbot's, and is perhaps the most remarkable of the many examples of natural magic with which photography has brought us acquainted.

It has long been a problem, the solution of which has been anxiously looked for, whether we might hope to obtain pictures in all the beauty of natural colour. This has not yet been quite successfully accomplished ; but the approaches towards it are so favourable that we may hope, in a few years, to find our photographic pictures coloured by the agent which now draws them.

That the delicate and fading images of the camera obscura should be permanently secured upon plates of metal and glass, and on paper, was, at one time, beyond the dreams of science. We rejoice in the reality, and Nature herself paints for us the portrait of a friend, or those scenes which are endeared to us by the tenderest and most refined associations.

We have now the means of obtaining the most truthful representations of the Pyramids and the tombs of Egypt. The Assyrian Excavation Society have realisations from the pencil of the sunbeam of all that remains of the great monarchies of the East. The traveller in Central America has secured, with his camera, pictures of the wonderful works of the Aztecs and the contemporary races, of whom

we know so little, but whose works remain to speak of a savage grandeur and an advanced state of art, rivalling that which we find in the palace of Sardanapalus and the temples of the early Pharaohs. The ethnologist rejoices in his collection of portraits from all parts of the world; in his quiet home he is enabled, by the aid of photography, to study the physiognomies of all the races on the face of the earth.

The natural philosopher uses the same art to register for him the variations of atmospheric pressure and of the earth's temperature; more than this, the alterations in the magnetic intensity of this terrestrial globe are now faithfully registered by photography. The microscopist makes the light draw for him the details of organisation, which it would be impossible for the human hand to trace. The astronomer places a sensitive tablet in his telescope; and not only does the sun draw his own image, but the milder moon traces out for him her mountains and her valleys, her beetling precipices, like old sea-coasts, and her dreadful volcanic craters, large and deep enough to swallow up all England.

What, then, may we not expect from photography, with the advance of science?

A few years since it was thought that two or three salts of silver and of gold were the only bodies which underwent any remarkable change when exposed to the action of the solar rays.

It is now proved that it is not possible to expose any body, whatsoever may be its character, to the action of sunshine without its undergoing a chemical or a mechanical change. For example, take a plate of glass, of metal, of stone, or a surface of leather, or resin,—in fact, any organic or inorganic body, and placing a perforated screen above it, expose it for a short time to solar influence; then treating

the plate as we do the Daguerreotype,—exposing it to the vapour of mercury,—we shall find a picture of the superposed screen most faithfully made out on the surface; proving thus that it is impossible to expose any substance to sunshine without its undergoing a change; and that constant sunshine would be destructive to the permanence of matter, as now constituted. It has, however, been found that Nature has a beautiful provision for restoring the deranged conditions. During darkness, by the action of some peculiar molecular forces, all bodies possess the power of restoring themselves to the state in which they were previously to the *destructive* action of the sunshine; and as night and repose are required to restore to the animal and vegetable economy the vital forces which have become exhausted by the labours of the day, and the excitements which depend upon light, so are night and darkness required to ensure the permanence of the inorganic masses of the earth's surface.

Can there be a more beautiful provision than this? The laws by which the Eternal Creator works are indeed wonderful and grand; the study of creation's mysteries induces a refinement of the mind, and a holy tranquillity of spirit. No one can arise from reading a page of Nature's mighty volume without feeling himself to be

“A wiser and a *better* man.”

R. H.

THE GIRAFFE.

(*Camelopardalis giraffa*.)

THE Giraffe is the tallest of all the quadrupeds which walk on the earth, and belongs to that large and important order which live on vegetable substances, and, from chewing the cud, are named by naturalists *Ruminants*. Prof. Owen, in his valuable "Memoir on the Anatomy of the Nubian Giraffe," has shown that the giraffe is closely allied to the family which contains the deers; and that its nature and zoological affinities, so far as its internal structure illustrates them, may be expressed by terming it *a modified deer*.

A native of the warmer parts of Africa, it is organised by an all-wise Creator to browse on the tops of trees. For this purpose it is tall, and has a peculiarly elongated neck. Like the deer tribe it has horns, but they are short, as the extremely long neck "disqualifies it for wielding antlers of sufficient strength and size to serve as weapons of offence." Short as the horns are, they are permanent, and adorn the heads of both sexes,—peculiarities found in only one or two species of deers; they give the head an elegance and *a finish*, the want of which would be very obvious were they not present.

We cannot do better than quote the words of the Hunterian professor,* who has done so much to illustrate the structure of this giant of its order:—"The general form of the giraffe is modified with a special reference to its exigencies and habits, which are dependent upon its geographical position and the nature of its food; the prolongation and extensibility of the hair-clad muzzle, and the peculiar length, slenderness, and flexibility of the tongue, are in

* Owen, "Trans. Zool. Soc." ii. 219.

exact harmony with the kind of food on which it is destined to subsist. The oblique and narrow apertures of the nostrils, defended by the hair which is continued to their margins, and surrounded by cutaneous muscular fibres, by which the animal can close them entirely and at will, form a beautiful provision for the defence of the air-passages, and the irritable membrane lining the olfactory cavity against the fine particles of sand, which the storms of the Desert occasionally raise in suffocating clouds, and which man, and the animals compelled through his necessities to become occasional inhabitants of the Desert, find so much difficulty in excluding."

Dr. Ruppell, the distinguished traveller and naturalist, was among the first to point out a most admirable provision in the position and prominence of its large and lustrous eyes, which are so placed that the giraffe can see its enemy's approach, whether in front or in rear.

The lips and tongue have great powers of mobility, and in the tongue this is accompanied with a faculty of extension only surpassed among quadrupeds by the ant-eaters. The giraffe uses its tongue much as the elephant does its proboscis, and coiling it round the branches of the mimosa soon brings the delicate twigs within reach of its mouth. At the end it tapers to a point so fine that it can go into a small ring. As the giraffe has been furnished with an organ so admirably adapted for prehension, when in confinement it instinctively puts it to use in a variety of ways. Any one going within reach of its depressed and delicate muzzle can hardly fail to have an opportunity of seeing it try to use this exquisitely-formed organ. A female confined in the Garden of Plants at Paris used frequently to amuse itself by stretching its neck and head upwards, and pulling out the straws which were platted into the partition separating it from the next compartment. Mr. Owen mentions

that "many a fair lady has been robbed of the artificial flower which adorned her bonnet by the nimble, filching tongue, of the object of her admiration." He shows that the creature is more guided apparently by the eye than by the nose in the selection of objects of food, as it *munches* the mock leaves and scentless flowers so obtained with great apparent satisfaction; and this want of sensibility accords perfectly with the difference in the size of the nerves of sense and motion which the Professor has shown to obtain in the organ alluded to. One very singular instance is quoted of this "fondness for epidermic productions." This ludicrous occurrence took place during the lifetime of a predecessor of the present giraffes. A fine peacock was kept in the paddock, and as that noble Indian fowl was spreading his expansile tail in the sunbeams, and showing off his charms, one of the giraffes "stooped his long neck, and entwining his flexile tongue round a bunch of the gaudy plumes, suddenly lifted the bird into the air, then giving him a shake disengaged five or six of the tail-feathers, when down fluttered the astonished peacock, and scuffled off with the remains of his train dragging humbly after him."

Long as is the neck of the giraffe, it does not contain more vertebræ than those which support the head of other quadrupeds; but its flexibility is wonderful, and it is impossible to describe the variety of its beautiful movements. Like the swan—by no means the most graceful of walkers or runners—"from the shoulders upwards," it is one of the most charming of creatures; and with its ceaseless play of arching and curving, with its gentle rotation and wave-like rising and falling, that sleek and dappled throat exhibits the entire poetry of motion.

It is interesting to observe the giraffe when it chews the cud, and to see the appearance of the bolus ascending its long neck. Mr. Owen remarks, that the physiologist cannot

fail to be struck with the surprising swiftness with which the contractions of the muscular fibres of the gullet succeed each other. He has pointed out the truly extraordinary development of elastic ligament in the *ligamentum nuchæ*, or "pax-wax," as it is commonly called. We may quote his words:—"This mechanical stay and support of the long neck and of the head commences from the sacral vertebræ, and receives fresh accession from each lumbar and dorsal vertebra as it advances forwards; the spines of the anterior dorsal vertebræ become greatly elongated to afford additional surface for the attachment of new portions of the ligament, which appears to be inserted, on a superficial dissection, in one continuous sheet into the longitudinally extended, but not elevated spinous processes of the cervical vertebræ, as far as the axis."

The giraffe seems to be generally spread over Africa, at least from Nubia to the boundary of the Cape settlements. It is there met with in small herds, and is not so fleet as it was reported to be by some of the older travellers. Mr. Methuen, in his "Life in the Wilderness," often alludes to them; in one passage of his journal he says, "Observed a herd of at least twenty giraffes passing us in an oblique direction. My horse was not a fleet one, but being well acquainted with the habit of these creatures, of keeping to one line up the wind, I calculated my angle and rode to cut them off. I managed to hit two, right and left, both gave a bound, and reeled slightly as the bullets struck them, but joined with their companions in their peculiarly awkward canter, and plunged into the bush." He had killed a male which was above eighteen feet high, about the outside limit of their stature, though some travellers say they have killed specimens twenty feet. Though not very swift they are exceedingly long-winded, and in this way they tire out horses which have had to subsist for some time on desert fare.

The flesh of the giraffe is highly esteemed by the savage races which inhabit Africa. When they have eaten their fill, Methuen relates that the Griquas cut the meat into long flaps, which they hang up to dry in the same way as clothes are strung up after being washed. The hide of the giraffe, which is an inch thick when in a green state, is much prized by the same nation for shoe-soles. In a more northern part of the same continent Major Denham mentions that the tail is made into fly-flappers.

The precocity of the young giraffe may be exemplified by the following facts : a specimen born in the Regent's Park began to take vegetable food when three weeks old, and when it had reached its fourth month this formed the bulk of its meals. It then ruminated regularly like the mother. When three months old it had grown a foot higher than it was at its birth, and by its ninth month it was nine feet six inches high : in nine months it had grown three feet six inches. Another specimen was able to walk when ten hours old, and in eight hours afterwards the walk was developed into something like an attempt to run. The large size of the new-born giraffe as compared with that of allied animals, and the great length of its long and slender limbs, are very striking, and are an evident provision of its Creator with a view to its helping itself to its first sustenance, as well as to the exigencies of its desert birth-place, enabling it along with the parent to escape from the lion and other beasts of prey.*

In 1836 there were seven living giraffes in England, three in the Surrey, and four in the Regent's Park Zoological Gardens. This is the largest number that has ever been brought together for exhibition since the days of the third Gordian, when, according to Pliny, ten giraffes were slaughtered at the millenarian games to gratify the depraved Roman taste. In the Gardens of the Zoological Society six

* See Owen, "Trans. Zool. Soc." iii. 23.

giraffes have been born. The first of these was a healthy male born on the 19th of June, 1839. From over-anxiety on the part of its curators, to assist the mother in nursing it, this interesting tropical stranger died in ten days; but the others having been treated less artificially have thriven as well as any domestic animal could have done. At present there are three specimens, two of which, a father and a fawn, have been "born and bred" in the Gardens. The female, named *Alice*, was the gift of Ibrahim Pacha in 1849, and was caught in the deserts of Nubia. The male is named *Ibrahim*; he was born on the 23d April, 1846, and promises to be as long-lived as was his mother *Zaida*, who spent at least sixteen years of her life in a climate as opposed to that of her birth as can well be imagined. She bore an excellent character as a nurse, and has left her name to the youngest of the three, who is about one year old.

The two adults are fed on clover-chaff, chopped turnips, and oats, and beans, of which they eat from 30 to 36 lbs. a day; and, judging by their glossy coats and healthy appearance, this nutritious mixture must be at the least as palatable as any mimosa-branches however delicate.

We may mention that some naturalists, Dr. Shaw for instance,* have regarded the zômer of Deuteronomy, xiv. 5 (called by our translators "chamois"), to have been the giraffe; but it seems improbable that an animal confined to the remote parts of Africa was ever intended to afford food to the Israelites, even if, to quote Dr. Shaw's words, we presume "that the Israelites during their long captivity in Egypt were not only well acquainted with it, but might at different times have tasted it."

A. W.

* "Travels or Observations relating to Barbary and the Levant," p. 417.

HEARTS OF OAK.

GENEROSITY.

If generosity be the offspring of sympathy and unselfishness, we might well expect to find it strongly developed in the character of a seaman ; for he is almost proverbially regardless of his own interests and full of consideration for the calamities of others.

Perhaps his intimacy with danger and want of forethought may render him forgetful of himself ; perhaps his isolation from general society may make him ready to commiserate all the distressed. Of the propensity there can be no doubt.

“ Why what’s that to you if my eyes I’m a wiping ?

A tear is a pleasure, d’ye see, in its way ;

’Tis nonsense for trifles, I own, to be piping,

But they that han’t pity, why, I pities they.

Says the captain, says he, (I shall never forget it,)

If of courage you’d know, lads, the true from the sham,

’Tis a furious lion in battle, so let it,

But, duty appeased, ’tis in mercy a lamb.”

There never yet was a true sailor in whose career we might not find some illustration of a virtue so characteristic of the profession, and so honourable to humanity. A few instances may be profitable and interesting to all of us.

On the 29th December, 1807, the *Anson*, Captain Lydiard, was wrecked on the coast of Cornwall, about three miles from Helstone, and the captain’s generous self-devotion was seen to be equal to the valour which he had lately displayed in the celebrated reduction of Curaçoa.

When the ship first struck all was confusion, and the roar of the tempest only mocked the noise of the falling masts and the shrieks of the women. But the voice of the

captain, as, self-possessed and undaunted, he issued his orders to the panic-struck crew, restored hope and created confidence. When the mainmast went overboard it formed, very providentially, a communication with the shore, by which Captain Lydiard encouraged his people to save themselves. Holding on by the wheel, he continued to cheer and direct them as they, one by one, essayed the dangerous passage; and anxiously he watched their happy success or their miserable failure. At last he was about to cross himself, when he was arrested by the cries of some one in the extremity of terror, and, proceeding to ascertain their origin, he found a boy, whom he had lately entered, clinging in despair to part of the wreck, without strength or energy to attempt his own deliverance. Captain Lydiard did not hesitate, for he was resolved that none should perish whom he could preserve. With one arm he held the boy, with the other he endeavoured to support himself over the slippery and dangerous bridge by which he hoped to reach the shore. But his bodily strength, worn out as it had been by toil and anxiety, was not equal to the determination of his soul: the mast escaped from his hold, and the gallant and brave-hearted Lydiard shared a watery grave with the poor child he had so nobly attempted to rescue.

Many such examples of heroic self-sacrifice must occur to the minds of our readers; but among them, perhaps, none has surpassed the noble and determined devotion of Captain Charles Baker and the crew of H.M. Brig Drake.

This ship was wrecked in a fog on the coast of Newfoundland, on the 20th June, 1822. Scarcely was she aground before her condition was hopeless. The sea was so heavy that her boats were successively swamped or stove; and the best swimmer of the crew, who endeavoured to take a line to the shore, was dragged back to the ship, exhausted by the violence of the waves; but Captain Baker and his

men remained undaunted, and were, each one, ready to attempt any desperate enterprise for the safety of their companions. At length the boatswain succeeded in reaching the shore in the dingy (the only boat that would swim), which was, however, crushed against the rocks as he landed. While he was doing so, the wreck was driven near to a dry rock, and Captain Baker ordered the crew to take refuge on it, but he was obliged to reiterate his resolution of being the last to leave before he could induce any of these brave fellows to precede him. When they had all gained this temporary refuge they found themselves but a few yards from the mainland, but they also made the terrible discovery that their asylum would be covered at high water, and the waves were so boisterous that no man could hope to cross the narrow channel.

Still none showed a sign of fear or impatience ; but the commander and his gallant band waited calmly for what seemed to them inevitable death. The boatswain now threw across to his comrades the rope which he had taken on shore, and there was another generous struggle among them, every man refusing to be saved until he had been commanded to go by the captain. Forty-four thus landed ; six remained on the rock, but one of these was a woman whose hardships had taken away all her energies. The next man to cross took her in his arms and committed himself, thus burdened, to the rope ; but that proved unequal to the increased strain, and neither of them reached the shore. The breaking of the rope deprived those who were left of all hope. In vain their friends on shore tied every available shred together to make a line ; in vain they sought the nearest inhabitants for help ; before they could return to the beach the waves rolled over the last refuge of Captain Baker and the remnant of his noble crew. Single individuals have before and since displayed similar generosity

and heroism ; but, perhaps, no body of men can be pointed out who have done greater honour to the name of seamen, or who have evinced more calmness, intrepidity, and self-devotion, than the crew of H.M. Brig Drake.

We are proud to see our sailors still emulating such glorious examples whenever they are placed in the like unhappy positions. We have not forgotten how they provided for the safety of the women and children when the Birkenhead was lost ; nor how the crew of the Britannia nursed their messmates with the tenderness of women whilst exposed to the ravages of a most malignant and mysterious disease. In those cases which we have mentioned, we have seen men in a common danger disregarding themselves for the sake of their companions ; it remains for us to give an instance of one, who was himself in safety, voluntarily risking his life to save those of his fellow-creatures.

We shall select an incident in the life of Sir Edward Pellew (afterwards Lord Exmouth) when in command of the *Indefatigable*, which not only shows generosity and humanity, almost unparalleled, but is also calculated to teach us of how much value is the influence of a single decided and well-ordered mind in circumstances of danger and confusion.

In January 1796, when the *Indefatigable* was lying in Hamoaze, the *Dutton*, a large East Indiaman, with part of the 2d regiment and many sick on board, was driven into Plymouth by stress of weather ; and, in consequence of a buoy having broken adrift, came ashore under the citadel.

Sir Edward, accompanied by Lady Pellew, was on his way to dine with Dr. Hawker, the excellent vicar of Charles, when he noticed the crowds running to the Hoe ; and, having learned the cause, he sprang out of the carriage and ran off with the rest. Arrived at the beach, he saw at once that the loss of nearly all on board, amounting to between five

and six hundred, was almost inevitable. The captain had left the ship, on account of indisposition, the previous day ; but the officers who were on board had succeeded in getting a hawser to the shore, by which some of the people had landed. This, however, was a slow and dangerous operation ; for the rolling of the vessel as she lay broadside on in the surf, would sometimes jerk the rope high in the air, and then bury it beneath the waves. Every minute was of consequence, for night was approaching, and the wreck fast breaking up.

Sir Edward was anxious to send a message to the officers, and offered rewards to pilots and others on the beach to board the wreck ; but when every one shrank from so dangerous a service, he exclaimed, "Then I will go myself." Availing himself of the hawser which communicated with the ship, he was hauled on board through the surf. The danger was greatly increased by the wreck of the masts, which had fallen towards the shore ; and he received an injury on the back, which confined him to his bed for a week, in consequence of being dragged under the mainmast. But disregarding this at the time, he reached the deck, declared himself, and assumed the command. He assured the people that every one would be saved if they attended quietly to his directions ; that he would himself be the last to quit the wreck, but that he would run any one through who disobeyed him. His well-known name, with the calmness and energy he displayed, gave confidence to the despairing multitude. He was received with three hearty cheers, which were echoed by the thousands on shore ; and his promptitude at resource soon enabled him to find and apply the means by which all might be safely landed. The officers of the *Indefatigable* were in the meantime exerting themselves to bring assistance, although not aware of the position of their captain. Lieutenant Pellowe left the ship in the barge, and Mr. Thompson, acting master, in the launch ;

but the boats could not be brought alongside the wreck, and were obliged to run for the Barbican. A small boat belonging to a merchant-vessel was more fortunate. Mr. Edsell, signal-midshipman to the Port Admiral, and Mr. Coghlan, mate of the vessel, succeeded, at the risk of their lives, in bringing her alongside. The ends of two additional hawsers were got on shore, and Sir Edward contrived cradles to be slung upon them, with travelling ropes to pass forward and backward between the ship and the beach. Each hawser was held on shore by a number of men, who watched the rolling of the ship and kept the ropes tight and steady. Meanwhile, a cutter had with great difficulty worked out of Plymouth port, and two large boats arrived from the Dock-yard under the directions of Mr. Hemmings, the master-attendant, by whose caution and judgment they were enabled to approach the wreck, and receive the more helpless of the passengers, who were carried to the cutter. Sir Edward, with his sword drawn, directed the proceedings, and preserved order,—a task the more difficult, as the soldiers before he came on board had got at the spirits and many were drunk. The children, the women, and the sick, were first landed. One of them was only three weeks old, and nothing in the whole transaction impressed Sir Edward more strongly than the struggle of the mother's feelings before she would intrust her infant to his care, or afforded him more pleasure than the success of his attempt to save it. Next the soldiers were got on shore, and then the ship's company, Sir Edward himself being one of the last to leave. Every one was saved, and presently after the wreck went to pieces.

G. W. S.

MY BROTHER'S KEEPER.

CHAPTER XII.*

Not for my peace will I go far,
As wanderers do, that still do roam;
But make my strengths, such as they are,
Here in my bosom, and at home.—BEN JONSON.

‘MISS ARNET, ma’am,’ said Tom, opening the sitting-room door one morning.

‘O Marion!’ cried little Hulda springing towards her, ‘is that you? I thought you never were coming here again.’

‘I began to think so myself, pet. Good morning, Alie. Good morning, Captain Thornton! I saw your troop out and supposed you were with them.’

‘Good morning, Miss Arnet. I am sorry you should be disappointed, but I can soon go, if that be all.’

‘You are excessively stiff and disagreeable this morning!’ said Marion colouring. ‘Can’t one give one’s cousin his title without being immediately hailed as Miss Arnet?’

‘It is in the nature of ice to freeze, nevertheless,’ said Thornton.

‘Alie,’ said Marion turning to her, ‘I came to borrow this child—will you let her go?’

‘Ah please do!’ said Hulda who was bestowing on Miss Arnet a small hundred of kisses. ‘I always like to go with you, Marion. But why don’t you come here as you used to?—when we all love you so much.’

* [In resuming this story it is due to the Author to state that the narrow limits of this miscellany have rendered it necessary to omit many scenes and incidents contained in the original manuscript.—ED.]

'Are you sure you do?' said Marion. 'Alie, you haven't spoken to me yet, except with those violet eyes of yours. Will you let Hulda go?'

'Yes, and glad. She is too quiet here with me sometimes.'

'O no I'm not,' said Hulda. 'But I like to go, too.'

'Then run and get ready, pet—get your bonnet, I mean. Don't put on another frock—I'll lace-ruffle you if it is necessary.'

'Why do you plague yourself with that child?' said Thornton.

'I do *not* plague myself with that child. Of all the children I ever saw, she is the least of a plague.'

'Your experience differs widely from mine.'

'You have not studied the subject of counterpoise, Captain Thornton. Things to love one in this world are not so plenty that one can afford to put out the fire of a child's affection for fear it should now and then fill the room with smoke.'

'Very rhetorically expressed,' said Thornton; 'and quite in Rosalie's style. I should think she had been giving you lessons.'

'She gives me a great many that I do not take,' said Marion with a sudden change of expression—'I wish I had ever been more ready to learn! I wish all the world were like her! Alie, my dear, what do you do to me? When you are silent I feel reproved for speaking, and when you speak I feel reproved for the way I have spoken. Your power is like nothing but the old fashion of a lock of hair round a love-letter—very strong, because nobody would break it. One would have small compunction about filing a chain in two, but who could struggle against such a lock as this?—'

'You are riding off too fast on your simile,' said her

cousin. 'The hair bound up only the lady's own thoughts—and was destined to be untied, after all.'

'By the proper person,' said Marion. 'O yes—and I expect to see your power in other hands than your own, by and by. Which is the thing of all others that Thornton least likes to hear. I would not for something be the man to encounter him in such circumstances.'

'Are there any circumstances under which you *would* like to encounter me, Miss Arnet?'

When Miss Arnet and Hulda were gone, the morning passed rather moodily. Thornton seemed disposed for home comforts—or home meditations, and yielded very little return for his sister's kind and delicate attempts to please him. When at last he roused himself to go out, however, he did condescend to signify his appreciation of them.

'You are like nobody else, Alie—nobody else in the world,—Marion is right there. But whether her growing like you would benefit me much, may be questioned. You are a stiff enough little child yourself, and I don't believe would shake her resolution if you could.'

'I am sure I have tried hard to shake yours.'

'My resolution won't shake—or if it does will do no more. It is fast at both ends. And that child thinks she can twirl me round her thumb—and so she can I suppose, in heart, but not in purpose. Well—I thought I had got used to it.——'

'But why cannot you talk to each other peaceably, at least?' said his sister.

'Because having said the most provoking things we could to each other, the less provoking come natural, I presume,' said Thornton. 'I don't think Marion could speak to me as she speaks to other people. There is a kind of lemon-squeezer effect about all she says.'

‘I am sure she never speaks of other people as she speaks of you.’

‘Well—it may be,’ said Thornton. ‘Snows, doesn’t it?—But I tell you, Alie, it’s of no use for you to look sober about this—if you wear such a face people will think my canary bird has a hard jailer.’

It was no prisoner’s look that she turned to him, and for that he kissed her more than once before he went.

An hour passed by, and Rosalie had gone up to her room, and was beginning the business of the toilette in a very leisurely and reflective sort of way, when Martha Jumps came in.

‘My stars alive!’ she said—‘Well if you ain’t all undressed at this very identical minute!’

‘Well?’—said her mistress.

‘Well’s easy to spell,’ said Martha sententiously, ‘but whether the gentleman down stairs is agoing over the letters to himself, is a question.’

‘What gentleman? I told Tom to let nobody in.’

‘Very good,’ said Martha; ‘but you didn’t tell me; and when Tom Skiddy’s to the baker’s he ain’t at the front door, commonly. But do make haste, Miss Rosalie, because ——’

‘Because what?’

‘O I don’t know,’ said Martha—‘‘because’ never stays put in my head,—it’s a kind of floating population. I don’t know who he asked for first, neither, but I told him Captain Thornton wa’n’t home. I guess it don’t much matter ——’ said Martha in a satisfied tone, as if it did matter a great deal but all the right way.

‘Are you sure I am wanted at all, Martha?’

‘Sure as he is—and there’s no going beyond that, ma’am. Now you’ll soon be ready. My! what white

arms ! It's a mystery to me what ever does come over some folks's skins. Miss Rosalie ! you forgetfullest of all ladies (in this house),' said Martha parenthetically, 'here's one of your rings on the washhand stand. There—do go.'

'Lovely she is, and he too,' said Martha Jumps to herself as she looked over the balustrade after her mistress, —'and he was here yesterday—that's more. Now if I wasn't honourable, which I am, wouldn't I go down and second all the motions through the keyhole ! There—shut fast. Such doors ! I should think cur'sosity 'd die an unnatural death in this house for want of air. Well—I'll go look after Tom Skiddy !'

It was indeed a lovely vision that Mr. Raynor saw when the opening door drew his eye in that direction. She was dressed according to the fashion of the day ; but her look was like no fashion that the world ever saw.

'I could not come sooner, Mr. Raynor,' she said,—'if that is any apology for keeping you waiting so long.'

'I have been conversing with an ideal presence,' he said with a slight smile, 'and too pleasantly to find the time long. I wish I could hope to go over the same interview with the reality.'

'You have brought your mother back with you?' said Rosalie.

'Certainly—or rather she has brought me. But she was a little fatigued with the journey, and has not been able to go out since ; or you would have seen her.'

'So I understood—so she said in the note she was so kind as to write me.'

'The note whose request you were *not* so kind as to comply with,' said he smiling. 'Why was it, Miss Rosalie ? Has the old friendship died out on your side ?'

'O no—' she said earnestly.

'It died out on mine, long ago,' said Mr. Raynor,—'at

least if transformation be death ; and I should like to have your consent to the new order of things.'

'No, the old was too good to be changed. But Mr. Raynor ——'

'But Miss Rosalie, if you please, I am not ready to quit the subject. I went to Europe with one thing in my mind that I had been forbidden to speak out—though I begged hard for permission. But because we were both so young, I was required to go without telling you in words who was the best loved of all the friends I left in America—which indeed I thought you must know without words.'

She sat silently listening to him, with a face grave and quiet, as if her mind was but half upon what he said,—as if she knew it all already—as if some emergency which she had expected and tried to ward off had come, and she knew what her answer must be, and was trying to strengthen her woman's heart and woman's voice to give it. A look very different from the almost sensitive timidity which reigned there when no deep feeling was in exercise. An expression which Mr. Raynor had seen but once before—and that was on the night of his arrival, when he had watched so long to see it change to one he remembered and liked much better. He did not like it now at all—he would rather have seen *herself* more present to her mind—her colour deeper, and her self-control less.

'Well,' he said at last—and though the voice was gentle it was very grave—'what are you plotting against me? I see you knew all this long ago, and that it has been not quite forgotten in the meantime. I have told you my thoughts, dear Rosalie—tell me yours.'

'I wish they had never been told me—that they had been left to my own imaginings. I wish, oh how much, that if you had any such thoughts before you went abroad, Mr. Raynor, you had left them all there.'

‘You might as well wish that I was not Mr. Raynor, at once. And as to not telling them—I’m afraid I should not soon have you really at the head of my house if I waited for your ‘imaginings’ to place you there. It is high time that my persuasions came in aid.’

She passed her hands over her face for a moment, and then clasping them together and looking up at him that he might see it was no unsettled purpose, she said,

‘I cannot leave my brother, Mr. Raynor.’

He looked at her steadily for a moment,—and then as her eyes fell again he sprang up and stood before her, and said,

‘But Rosalie! what sort of a reason is that?’

‘A good one, if you will take the right point of view,’ she said with the same steadiness, except that his look or his words had somewhat moved her lips from their composure.

‘Then I take the wrong. It does *not* follow, dear Rosalie, that of two people who love you with all their hearts you should choose the one who has always had you—unless he has all your heart as well.’

‘But it does follow that I should give myself to the one who wants me most.’

‘I will throw down my gauntlet upon that!’

‘Ah you do not take the right point of view. He needs me more than you can understand.’

‘I know he would miss you—he could not help that. But—— would you have said this to me two years ago?’

‘He would not have been left alone then.’

‘And you are left alone now. Forgive me, dear Rosalie—I do not say it in unkindness—but ought you not to take some care of yourself? Is it quite right to think only of another’s whims and fancies?’

‘He has nothing to do with it,’ she said quickly—‘at

least not in the way you suppose. But Mr. Raynor ——' She paused a moment and then went on.

'I must tell you all—it is but just. Mr. Raynor, I am the only friend he has in the world! Of all the people with whom he most associates there is not one, there is not one! whose influence for good is at best more than neutral. He does not go the lengths that some of them go—he has a little remembrance yet of what he was—a sense of honour and truth as strong as he ever had. But if he has any regard for my words, any love for me—and you know not how much!—could I be justified in leaving him to the unmitigated influence of worthless companions and unworthy pursuits?'

She had spoken very low at first, with evident grief and mortification; looking up then with her whole heart in her eyes, and yet with those same meekly folded hands, as if beseeching him neither to urge nor distrust her.

He met the look, and then turning abruptly away he began to walk up and down the room,—but more in excitement than in thoughtfulness. Walking as if the disturbed spirit could not subside, and without once looking towards Rosalie.

'You are displeased, Mr. Raynor,' she said at length. 'You think I am trifling with you.'

He came to the end of the sofa where she sat, and took her hand in both of his.

'Nothing upon earth could make me think that! But I cannot bring my mind to look at things as you do,—neither is the feeling wholly selfish. If you could see yourself with the eyes of a third person, Rosalie, you would understand one of the reasons why I want you to be my wife, much better than you can now. Is it right, I must ask you again, to forget yourself entirely? to take no care for yourself?'

‘No — perhaps not —’ she said, but the voice was less clear and steady — ‘in one respect you may be right. But one needs to take a very wide view of things. I do not speak without consideration. I know too, that it is not in my hands — that I have no power that is not given me, — and I cannot tell how things will turn out. But God seldom makes the whole path clear before us — it is only the first few steps. Should I therefore refuse to take them? O Mr. Raynor! you have known what it was to live without God and without hope in the world — is anything too much to bring one out of that condition?’

She gathered breath and went on.

‘I have thought — very much of late — of the day when “them that sleep in Jesus God shall bring with him” — when the book of life shall be opened. It is not enough to know that her name is written there — to hope that mine stands by it ——

‘I know it is not in my hands’ — she went on presently, — ‘and yet I cannot leave him!’

She said no more, and sat silent, except for those silently flowing tears.

‘I dare not urge you —’ Mr. Raynor said then. ‘I dare not put my own earthly happiness, nor even yours, dear Rosalie, in competition with another’s eternal welfare. The sick of the palsy was healed for the faith of them that brought him. Surely if ever endeavours were blessed, yours might be! But tell me one thing — was this the *only* reason?’

‘If there had been another you should never have heard this,’ she said.

‘I might have answered that myself.’

He stood silent and grave, as if the struggle were in his mind yet, till she rose up and said,

‘Good bye, Mr. Raynor — you must not stay here any

longer—and for the future we must be only common friends.’

‘I must not stay here any longer at present,’ he said with some emphasis, ‘but I do not give up my claim—it is only postponed. Nay, do not contradict me. And we must *not* be common friends—for I have a more than brother’s right to be called upon, and shall perhaps assume that right to watch over you, whether I have it or not. And as for you, dear child,—“The Lord bless thee, and keep thee: the Lord make his face shine upon thee, and be gracious unto thee: the Lord lift up his countenance upon thee, and give thee peace!”’

He went—and as the door closed behind him Rosalie felt as if she had taken leave of the sunshine of life, and turned her face unto the shadows. Hulda thought her sister very tired that evening;—and when late at night Thornton came home and went to take a look at the sweet face whose pleadings he so often disregarded, he found its expression more hard to read than usual. He was sure there had been sorrowful thoughts at work—that the fountain of tears was hardly at rest now; but for whom had they come? Not for herself. He could not trace one murmur on the placid brow, and the mouth seemed to speak what had been her last waking thoughts—‘And now, Lord, what wait I for? my hope is in thee.’

But had they been for him? Thornton puzzled over it till he was tired, and went to bed to dream that he had forbidden Mr. Raynor the house

(To be continued.)

THE TRIUMPH OF DAVID.

FULL forty days Azekah's heights
Shone with Philistia's mail :
For forty days had Israel's hosts
Cower'd down in Elah's vale.
And every morn, with growing scorn,
The giant champion came ;
The while each heart in Israel's camp
Quaked at Goliath's name.
With challenge proud and insult loud
God's armies he defied,
" Give me a man that we may fight !"
But not a voice replied.

And now another morn has risen,
And in the distant plain,
O'er corn-fields fair, the tremulous air
Takes back the dews again.
Along the silent path that leads
From Bethlehem—Judah's fold,
The harvest bends ; grain after grain
Drops from its sheath of gold.
Grapes load the vine, the untended kine
Low mournful from afar,
For every hand has seized a brand
And follow'd to the war.

As a sweet face that slumbering seems,
Shut up in soft and silent dreams,

With a stranger presence by,—
Wakes with a glow all magical
Alone, 'neath a loving eye
So, in the silence left by man,
Nature unveil'd her eyes,
And, left alone with God, at length
Woke up in glad surprise.
The bloom of the morning was all untouch'd,
The shyest birds were singing,
And the smallest rill down the distant hill
Was heard in its musical ringing.

Along the path from Bethlehem
One step at length is heard,—
An elastic step, that emulates
The rising of a bird :
A moment's hush, as it pass'd along,
Seem'd borne on the charmèd wind ;
But the joyful songs, like parted waves,
Closed up again behind.
Along the path to Israel's camp
The shepherd-stripling trod,
Unconscious of his hidden strength,—
A heart to trust in God.

And he, like Nature, felt the spell ;
The wide-spread solitudes
Seem'd fill'd with God,—the silence rang
With loud beatitudes.
Amidst the quiet of the hills
His youth had pass'd alone ;
“ Day unto day had utter'd speech,
And night had knowledge shown.”

There, while he kept his father's sheep,
His soul a Shepherd found,
Who fed with truth his gentle youth,
And tuned his harp's wild sound.

Now as with eager foot he throws
The lengthening leagues behind,
The stirring voice of martial noise
Comes borne upon the wind.
Through vineyards brown and trampled down
His steps begin to fly ;
And pressing fast, in eager haste,
He gains the ridges high,
From whence the serried ranks below
Are seen in fair array,
And glittering fields of spears and shields
Glance back the eastern ray.

Unconscious of his country's shame,
His throbbing heart beats high :
Thoughts long repress'd burn in his breast,
And fire his kindling eye ;
And half indignant at his task,
He eyes the vessels stored
With corn and grapes, unfit for hands
That well might wield a sword.
'Twas but a moment :—plunging down
He gain'd the camp below,
Just as the host with sounding shout
Went forth to meet the foe.

He scarce had laid his burthen down,
And with quick footsteps ran

To greet his brethren at their post,
When, all along the van,
That boastful shout died trembling out,
And pale grew every cheek,—
For mid the opposing ranks of spears
Goliath's towering form appears.
Like some bold mountain-peak,
Rising sublime at morning prime,
High o'er the eddy mist ;—
So o'er the circling ranks below
His giant bulk was seen to grow,
And while they moved in shadow dun,
Across the heights the slanting sun
His brazen helmet kiss'd.

With careless strides he bridged the space
That 'twixt the armies lay ;
With calm contempt began once more
The challenge-words to say.
But scarce did Israel wait to hear,
Ere, like a troop of timorous deer,
Scared by the lion crouching near,
They fly in wild dismay.

What tongue can tell the indignant swell
In David's breast that rose ;
The sudden flush of holy shame,
The thought, that fell like lightning flame,
Of e'en Jehovah's awful name
Disgraced before His foes ?
With flashing eyes he turn'd around,
Brief question put, strange answer found.
"And who is this," he boldly cries,
"This mail'd Philistine who defies

The armies of the living Lord?"
Sordid they answer'd, "Thus the word
Of royal Saul doth stand:—
The warrior who Goliath slays,
His house in Israel I will raise,
He shall with wealth enrich his days,
And win my daughter's hand."

As when from out the o'erflowing hive
The swarming bees are driven,
Now poising high, now hovering down,
A living cloud of dusky brown
Against the clear blue heaven:
Let but the destined queen appear,
The buzzing anarchy
Instinct with conscious order burns,
And sudden loyalty.
So through the disorder'd camp the thrill
Of a strange influence ran,
As David's words went swiftly round,
Rehearsed from man to man.
The dullest eye, the firmest will,
With sudden impulse bow
Before the strength, that, calm and still,
Sits throned upon his brow.

And now the rumour strange had reach'd
The tent of Saul the king;
He heard the tale, and gave command
The rustic youth to bring:
Full soon the guards that stood before,
All mail'd and helm'd to keep the door,
Held back its silken fold;
And, pausing with a modest grace,
Young David stood a moment's space

Beneath the fringe of gold ;
Then stepp'd before the royal seat,
And, bowing low with reverence meet,
His simple purpose told.

“ Let no man's heart,” the stripling said,
“ For this Philistine fail !
Thy servant will go forth and fight,
And o'er his strength prevail.”
“ Thou art not able thus to meet,”
(King Saul replied in sooth),
“ This man train'd from his youth to war,
Whilst thou hast lived from battles far,
And still art but a youth.”

But still young David answer made,—
“ Once, while thy servant kept
His father's sheep, a bear and lion
Forth from the forest crept :
The bear had seized a helpless lamb,
The lion follow'd hard :
Forth from the fold thy servant flew,
Out of his mouth the prey I drew,
And when he rose against me too,
I caught him by his beard ;
The lion and the bear I slew,
For God my prayer heard.
And this Philistine giant soon,
Seeing he thus defies
The armies of the living God,
Like one of them he dies !
The Lord, who then deliver'd me
Out of the lion's paw,—
The Lord, who saved my life from out
The bear's more cruel jaw,

He will again beside me stand,
To save from this Philistine's hand."
Then answer'd Saul, "Thou hast thy will;
Go,—and the Lord be with thee still."

Amidst the armèd men he stood
In simple shepherd guise;
The unshielded breast and helmless head
Seem'd weak to mortal eyes.
But, far outshining polish'd steel
Or glittering helmet's blaze,
His glorious panoply of faith
Dazzled the angels' gaze.
Not him alone they watch'd, but far
Within the future years,
Their eyes a greater David saw,
And wept prophetic tears.

Now, half in pity, half in pride,
Saul gives the royal word
To bind a helm on David's brow,
And o'er his breast the mail to throw,
And let his limbs in armour glow,
And give his hand a sword.
But high against the straining mail
His heart begins to swell;
Close-fetter'd by the clasping steel,
Th' elastic limbs rebel.
One doubting step he forward made,
Then turning frankly round,
"I cannot go with these," he said,
And laid them on the ground.

Then taking up his shepherd's crook,
He hasten'd towards the van;

But, pausing by the silver brook
That through the valley ran,
Five smooth and rounded stones he chose,
Worn by the running stream,
And placed them in his srip, and cross'd
Before the dumb astonish'd host,
Who gazed as in a dream.

Unarm'd, save for his shepherd's sling,
He drew towards the foe,
Who, cased in steel from head to heel,
Came onward pacing slow ;
And one that bare his monstrous shield
March'd on in state before,
While the barbaric hosts behind
Sent up the applauding roar.
And now his heavy footsteps paused,
Scornful he look'd around ;
His far-thrown gaze young David miss'd,—
But, glancing to the ground,
Sudden he spies the slender youth
Who through the vale advances,
Ruddy and fair, with golden hair,
On which the sunlight dances.

With fierce disdain his lips are curl'd
To see such champion stand
In answer to the challenge proud
Of his victorious hand.
“ And com'st thou me with *staves* to meet?
Soon shall thy tender flesh and sweet
To the wild beasts be given ;
To nourish the fierce jackal's young,
And feed the fowls of heaven.”

Alas ! our chilling western tongue
Freezes the glowing thought ;
But from that scene a Hebrew bard
Had inspiration caught :
That youthful form, all Heaven-inspired
With mingled strength and grace ;
The radiant light of triumph sure,
Of purest courage, faith as pure,
That shone on David's face.

The while he answer'd, calm and clear
Each word thrill'd through the list'ning ear :
" Thou com'st to me with sword and spear,
Helmet and ponderous shield ;
I come to thee with weapons far
More powerful in the ranks of war —
The God who rides the tempest's car,
As God of hosts reveal'd :
His arms my shield and buckler are,
His name the sword I wield.
That God whose strength thou hast defied
Shall, here, to-day, 'twixt us decide ;
And all the hosts shall know
That not by earthly spear or sword
Comes the salvation of the Lord ;
But, when He speaks th' almighty word,
The strongest arm lies cold and low,
Subdued before the feeblest foe."

Scarce had those words, so strangely bold,
Left silence in the air ;
Scarce had the grim Philistine time
To poise his monstrous spear ;

Before young David forward sprang,
And hastily a pebble slang,—
Like arrow from the bow.
Shrill through the startled air it rang
And smote the giant's brow.
Deep in his forehead sank the stone,
And with a mighty crash and groan
Dead fell the great Goliath down.

All fresh from the unbloody fight
The victor hasten'd on,
No weapon in his hand with which
His victory to crown.
But standing on Goliath's neck
He seized the giant's sword ;
From its broad sheath he drew the blade
And sever'd at a stroke the head
Of the Philistine lord.

But even then, a moment's space,
Dumb silence linger'd still
Along the ranks on either side
That throng'd the vale and hill.
Then, with a cry of victory,
That shook the earth and rent the sky,
The hosts of Israel rose ;
While, in a flood of wild despair,
Fled fast their heathen foes.
Far down in Ekron's valley green
The ghastly heaps of slain
Mark'd all the route of fierce pursuit
As far as Shaaraim's plain ;—
And long the loud Philistine wail
Told of the fight in Elah's vale.

Three thousand years well-nigh have slipp'd
Out of the hand of Time,
Since that strange solemn victory
In the far Eastern clime.
And long since then, yet long ago,
Leaving a heavenly fold,
Another Shepherd came to seek
The brethren loved of old.
“His own received Him not”—as towards
The deadly fight He drew.
He conquered Sin, the giant Death
With its own weapon slew.
He died, yet lives again, to lead
His ransom'd armies on :
Who trusts in that victorious Name
Can ne'er be overthrown.

But still the final victory
Pauses a moment's space,
Before in His triumphal car
Rides forth the Prince of Peace.
—A moment to the thoughts of God,
But weary years to ours ;
For still the battle rages on
Through the slow-circling hours ;
Still in a thousand different forms
Of sin, or care, or sorrow,
The weary conflict of to-day
Revives with every morrow ;
And still the same, yet changing still,
The giant's challenge comes,
Now, in temptation smooth and fair,
Now, like the spectre of Despair,

That wrings the hands and rends the hair,
Weeping o'er early tombs.

Alas ! to think of all the woe,
Of all the shame and sin,
That every morning's golden gates
Usher the world within :
The guilty weakness yielding still
To Satan's challenge-word,—
The busy hands that still will strive
A mortal sword to gird.
O for a pause,—an upward glance,
To see the two-edged brand
Stretch'd down from out the highest heavens
Held by a piercèd hand.
Oh, take the Spirit-sword ; let faith
Be as thy seven-fold shield ;
Salvation's golden helmet take,
And pass into the field.
Whate'er the sorrow or the sin
That may thy faith assail,
Lean on the strength of Christ the Lord,
And thou shalt yet prevail.
Remember every step was trod
Before thee by the Son of God.

Dream not—desire not that the fight
Should for a moment stay ;
For every hour that passes on
Nears to thy grasp the victor's crown ;
Each step thus trod in conquest down
Shortens the weary way.
And if, amidst the unequal strife,
Unwounded, and thy cup of life
Brimm'd with delight and peace,

Oh, think what wondrous talent stands
Entrusted to thy sinful hands,

The gift of happiness.

Look where the fainting warrior lies,

Borne from the thickest fray ;

Refresh his parchèd lips, his head

On thy warm bosom lay.

Thus follow Him who gently blest

The weary heart and gave it rest.

Obscure in massive thunder-clouds

Stretches the battle far.

One point alone of all the field

Where rolls the tide of war,

Within thy feeble gaze can fall ;

Then trust to God the mighty all.

When fallen are those who firmest stood ;

When strange afflictions come,

Baffling the keenest gaze that would

In seeming ill find certain good,

Then trust Him, and be dumb.

Trust Him in darkness as in light,

Faith is for earth,—for heaven, sight.

But, ah! the type that lives within

This old heroic story,

That thread of gold, how poor and cold

Beside the greater glory !

Yet dazzled eyes, that vainly strive

To gaze upon the sun,

Will almost hail the silvery veil

Which passing clouds have thrown ;—

And thus our eyes may fondly pause

O'er the historic word,

Where shrouded in young David's form

We read of David's Lord.

F. A. P.

DR. KITTO.

JOHN KITTO was born at Plymouth, December 4, 1804. His father, a Cornish man, was in his earlier days a master-builder, but gradually sank to the occupation of a jobbing mason, in which he was glad of his son's assistance when a mere boy of eleven years old. No wonder that the lad's education was very defective, and rendered more so by the frequent headaches which often made his attendance merely nominal,—so that at twelve he was an indifferent writer and a worse cypherer. At this period an event occurred which was the great crisis of his life. One day, while assisting in new-roofing a house, he lost his footing, and was precipitated from a height of five-and-thirty feet. A few moments excepted, he lay in a state of unconsciousness for a fortnight. At the end of that time, though suffering great general debility, it was found that he had escaped from all permanent injury except the total loss of hearing, of which he was first apprised by one of the bystanders round his bed holding before him a slate inscribed with the awful words that needed no Daniel to interpret, "*You are deaf!*"

Unable to resume his former employment, he seemed to be consigned for the rest of his days to a state of useless dependence. His bodily wants were, indeed, provided for as far as the limited resources of his family allowed ; but the spirit of that lonely boy craved its appropriate nutriment long before the possibility was revealed to him of being the master of a feast for other minds. Yet here, where sympathy would have been doubly precious, it was wanting, and but for the compassion which his outward condition called forth, ridicule would have accompanied the wonder excited at his strange fondness for poring so many hours over Kirby's

“Wonderful Magazine,” or Drelincourt on Death, with Mrs. Veal’s ghost-story by that most truth-like of all romancers, De Foe ; besides the other score of volumes which made up the scanty cottage book-lore of that day.

As his father’s means, instead of improving, became still more contracted, application was made in 1819 to the guardians of the poor for John’s admission into the workhouse. Here he was set to learn shoemaking, and in 1821 was bound to a person of that trade in the town. This, we suspect, was the period referred to in his work on “The Lost Senses” as a “terrible time,” when he was under a task-master of the Egyptian order from six in the morning till ten at night. “I tried to be happy, but it would not do ; my heart gave way. Twelve hours I could have borne ; but sixteen hours, and often eighteen, out of the twenty-four, was more than I could bear. To come home weary and sleepy, and then to have only for mental sustenance the moments which by self-imposed tortures could be torn from needful rest, was a sore trial ; and now that I look back upon this time, the amount of study which I did, under these circumstances, contrive to get through, amazes and confounds me, notwithstanding that my habits of application remain to this day strong and vigorous. Since then I have had many difficulties interposed between me and what I believed to be proper objects of my existence, but not any that I think equal to this ; and it did certainly evince a degree of enthusiasm and industry which I am now fully able to appreciate,—thus, without any encouragement of praise or approbation, to macerate the toil-worn body by the denial of needful rest, and even by painful infliction, for the sole sake of that nourishment of mind in which my chief good—the good most suited to my condition—had been found.”

It is very striking to observe how every event in Kitto’s

early life, which in itself wore a sinister aspect, actually carried him onward towards that eminent position which he ultimately occupied. Before the accident which deprived him of the sense of hearing, he states that he was "a voracious reader," so that the effect of his isolation from human converse was not to create, but only to intensify and concentrate, a passion already glowing in his breast.

Had Kitto been placed with a person of average probity and kindness, he might have been fixed for life in a position which would have repressed for ever all the noblest yearnings and aspirings of his heart. But the oppressive conduct and worthless character of his master rendered an appeal to the magistrates necessary. The charges having been substantiated, his indentures were cancelled, and he became once more an inmate of the workhouse. But this was not all. Owing to his deafness, his allegations were prepared in writing, and attracted notice and admiration for the accuracy and propriety of the diction. Such was the impression made on the minds of others; but the effect on Kitto himself was still more important. It gave him a consciousness of mental power till then unknown, and prompted him to his first attempts in authorship, which appeared in the "Plymouth Weekly Journal," having accidentally come under the notice of Mr. Nettleton, one of the proprietors. His own words will best describe the buoyant vigour which now animated him, and effected in his whole mental interior a change as great as the sudden verdure of a northern spring contrasted with the congealed desolation of winter. "I had learnt the secret," he says, "that knowledge is power, and if, as is said, all power is sweet, then surely that power which knowledge gives, is of all others the sweetest. And not only was it power, but safety. It had already procured for me redress of wrongs which seemed likely to crush my spirit; and thus bestowed upon me the gratifying, I had

almost said proud, consciousness of having secured a means of defence against that state of utter helplessness and dependence upon others which had seemed to be my lot in life. It does seem to have been the turning-point of my career. At a critical time of life it gave the bounding consciousness of essential vitality of subsistence to the higher realities of life—to one who had seemed

‘Dead more than half;’

and small as was the key, it seemed to open the door to a large world of hopes, which had till then seemed closed for ever against me.”

Encouraged by Mr. Nettleton, and another gentleman, Mr. Harvey, Kitto published in 1823 a small volume of essays and letters, with a short biographical sketch of the author. From the list of subscribers, it is evident that considerable interest had been excited on his behalf; and although this juvenile production is chiefly interesting at the present time from the subsequent celebrity of its author, yet it is pleasant to notice in the germ those intellectual and moral qualities which bore such admirable fruit at a later period.

Of the following years several were spent in foreign lands. He first went to the Mediterranean in company with Dr. Korck, a German physician, who had just taken orders in the Anglican Church, and Mr. Jadownicky, a converted Polish Jew lately arrived from America. At Malta he resided for nearly two years, and subsequently sojourned for three years at Baghdad. In his wanderings he visited most of the countries bordering on the Mediterranean, besides Persia and Russia. He speaks of having gazed on the glory of the Grenada mountains; he caught the Titanic shadow of Etna on the horizon; he spent many days among the glories of the Caucasus; he gazed with wonder at the cloudy ring of the volcanic Demavend; and mused day by

day on the dread magnificence of Ararat with intense and reverent admiration. This we believe was about the year 1829, within six years or so from a residence in the Plymouth workhouse ! What a marvellous transition, mental and physical ! He traversed Armenia in winter, and in the previous autumn had gathered grapes on the unfrequented streams of Georgia. He wandered among the endless fir-forests of Northern Europe as far at least as Moscow and Tver ; while in Asia he had beheld the magnificent plane-trees of Media ; he pitched his tent amidst the splendid palm-groves of the Tigris ; and explored the sepulchral sites on that river and the Euphrates with interest and awe.*

It is a singular fact that, under an improved phase of exterior circumstances (we quote his own words), Dr. Kitto's literary predilections never obtained encouragement, but were opposed as an unreasonable infatuation. But happily for himself, and for the world, he acted on his soul-felt convictions. He called into vigorous exercise all the resources at his command, and the kind providence of God directed him to an individual eminently qualified to form a correct estimate of his talents and acquirements. To the generous confidence of this true friend, Mr. Charles Knight, the public are indebted for that work which established Dr. Kitto's reputation as a biblical scholar, the "Pictorial Bible." This great and unique work was published anonymously—its success therefore was not owing in any degree to sympathetic interest felt for the author, but to its intrinsic merits.

The publication of the "Cyclopædia of Biblical Literature" was commenced in 1843, and completed in 1845. In a letter to the writer of this notice, dated May 17, 1842, Dr. Kitto says respecting it,—“The chief object will be to embody the results of recent researches in Biblical litera-

* Under the title of "Notes of a Deaf Traveller" he gave his impressions of foreign lands in the "Penny Magazine" for 1833.

ture both in this country and abroad, to have fresher materials, and to exhibit old facts in their new developments. Calmet has been reproduced in so many forms, that it is hard to say what it is that his name does or does not describe. However, generally speaking, I should say, that if my intentions are carried out our book will have more resemblance to Winer's ["*Biblisches Realwörterbuch*"] than to Calmet's. I believe that 'the religious public' are prepared to go a good way ahead of the Calmetish dictionaries; *how far* it will be one of our objects to ascertain, and we must be careful not to offend hastily or roughly the daintiness of the English appetite." This work, the joint production of about forty contributors, of whom the editor was by no means the least distinguished, has been properly described as "a noble monument of learning, dedicated to the illustration of the sources of our common Christianity."

Our limits will not allow of an extended notice of Dr. Kitto's "*Pictorial History of Palestine*," nor of his "*Journal of Sacred Literature*;" the latter occasioned him, probably, more anxiety and harass than any of his publications. After some years of toil he was obliged to relinquish it, but had the satisfaction of seeing it placed on a firmer basis, and under the superintendence of the present accomplished editor, Dr. Henry Burgess.

Passing over several minor, but valuable publications, we cannot omit the last, and in some respects most important, work of this indefatigable man,—his "*Daily Bible Illustrations*; being *Original Readings for a Year* (*Morning and Evening*) on subjects from *Sacred History, Biography, Geography, Antiquities, and Theology*, especially designed for the *Family Circle*," in eight volumes, the last of which appeared in January 1854. By his former works Dr. Kitto had established his reputation as a biblical scholar; but in this, while maintaining that reputation full-orbed, he

has thrown around it a halo of piety that renders it an object of ten-fold interest. Seldom of late have we seen a finer exhibition in the same person of the scholar and the saint. Scattered throughout these inestimable volumes there are allusions to his personal history, made with the utmost simplicity, which (though nothing could be more foreign to his intention) attest the depth of his piety, and show how closely he "walked with God."

That his career should close at the comparatively early age of fifty is not surprising, if we consider how much he accomplished under circumstances scarcely to be paralleled. The necessities of a young and numerous family permitted not the slightest relaxation in his labours, and for their sakes he was obliged to part with the copyright of all his works at the time of their publication. The pension from the Royal Fund of 100*l.* per annum was only obtained when symptoms of failing health had begun to appear. How far the headachs of his boyhood were premonitory of the disease which at last proved fatal, we cannot pretend to say. But for the last two or three years most distressing neuralgic affections prevailed, and ended in paralysis. Absolute cessation from all mental exertion was pronounced to be indispensable to recovery. A subscription, as most of our readers are aware, was opened in the spring of last year to raise the necessary funds for the immediate wants of Dr. Kitto and his family, with a view, also, to a more permanent provision. It was thought that a residence on the Continent offered some advantages in preference to remaining in his native land; and in August last, Dr. and Mrs. Kitto and their family removed to Cannstatt near Stuttgart, a town beautifully situated on the river Neckar, and famed for its mineral springs. Here, however, it pleased God to exercise the faith of His servant with fresh trials ere his own departure. His youngest child, an infant, sickened

and died, after about five weeks' suffering; and in three weeks was followed to the tomb by his first-born, who, previously to leaving England, had been in a very delicate state of health. The feelings of the afflicted parents are best portrayed in the following letter to W. Oliphant, Esq., of Edinburgh:—

“ *Cannstatt, Oct. 18, 1854.*

“ It has pleased God to withdraw from us the bodily presence of our dear daughter Shireen, our first-born thus following in just three weeks our last-born to the tomb. During the last twelve days I was as constant in attendance at her bedside as my own condition admitted, and had as much conversation with her as my deafness and her weakness (for finger talk) allowed; and I blessed God in the midst of my distress for allowing me the comfort of finding that she not only submitted to the Divine appointment concerning her, but accepted it with a cheerful spirit, and was enabled to move on, day by day, consciously nearing the unseen world with an unshaken countenance, strong in the assured belief that to depart and to be with Christ was far better for her than aught which life could have in store. I thanked God with all my heart for this high grace granted to her; and while our affections have been deeply smitten by the loss of one so dear and so highly gifted, we refuse not the comfort which the contemplation of a death so serene and cheerful is calculated to afford to those who know that hopeless sorrow is a sin. The circumstances of this great loss, following so soon upon the other, awakened much sympathy among the kind-hearted Germans; and the myrtle-crowned corpse was followed to the tomb by a large train of spontaneous mourners, composed *mostly* of persons unknown to us, and who are not likely to be known. I was not among them; for, although I had seen her die, the doctor and our friends here prevailed upon me to abstain from attending her to the grave. But neither the bier nor the tomb is *here* invested with the dismal incidents and ideas which prevail in England. All is here made significant of cheerful hope, as among the early Christians. All the symbols and inscriptions in the churchyard are of this character, and the yard itself is called the ‘peace-yard’ (*fried-hof*). I forbear to tell you of the many things this dear child was to do for me and with me ‘when she got well;’ and I am not yet strong enough to dwell upon the close affinities of mind and character, and the ever ready and quick apprehension on her part, which drew her very near to me, and rendered my intercourse with her a delight. But all this is over. Year after year, week after week, I

am bereaved of my children; and other trials—frustrated purposes, loss of health, loss of means, expatriation from the land I love—all these, though heavy, seem light in comparison. God help me! and I assuredly know and believe that, even with this large addition to my afflictions, He *does* and will help me, and that His help is sufficient for me in all things.

“My head has suffered considerably from these trials, which necessarily involved the suspension of my usual exercise, etc. But my poor wife, in addition to these wounds to her maternal affections, has had great personal fatigues and nights of watching to undergo; and these together have left her in a state of much disturbed health, from which I trust that rest may restore her. She and I, with our son, have been this day to visit the grave of our two children (for they allowed the little one to be taken up and deposited with his sister), and we found it overspread with very beautiful garlands—free-will offerings of the good people here.”

Up to the 24th of November no material change appeared in Dr. Kitto's health and spirits, except that on retiring to rest the preceding evening he complained of his head, but as that was no unusual circumstance it excited no alarm. About two o'clock, however, on the following morning he awoke, and remarked that he never felt so near being in a fit before. He went to sleep again, arose at the usual time, but at breakfast was seized with giddiness, and in a few moments was insensible. His medical attendant applied leeches to the temples, and bled him in the foot, but in vain. It was evident that his last hour was come. Two or three times he murmured to Mrs. Kitto, “Tell me, is this death?” and she was obliged to intimate that it was. The information did not appear to affect him, and after a day of intense suffering, during which he retained his consciousness, though unable to converse, he breathed his last. The day before the fit seized him he said that he was tired of life, and did not care to be as he then was, useless in the world.

J. E. R.

REVIEW OF THE MONTH.

WITH all its stirring incidents, 1854 is ended. The Crystal Palace is a realisation; Oxford is open to Dissenters; England and France stand side by side in a chivalrous alliance; war has been declared against Russia; and in the capture of Bomarsund, and in the victories of Alma and Inkermann, triumphs have been won, of which the moral grandeur is equal to the martial glory. With its fatal epidemic, with its fearful disasters at sea, and with the thousands who have fallen on blood-stained fields, it has been a grave and solemn year to Britain; and yet it has been a year of many mercies. Of these mercies, as still more precious than the plentiful harvest, we would mention the spirit of devout recognition which the Most High has poured out on the country, and of which the Fast in April and the Thanksgiving in October were the marked expression. Some steps have also been taken in the right direction with a view to the improvement of public morals. The whisky-shops of Scotland are closed for the whole of the Sabbath, and the taverns of England are open for only five hours of that day; whilst the compulsory attendance in reformatory schools of juvenile delinquents promises to rescue from ruin many who were only hardened in the hulks and the prison.

To the long annual obituary already including theologians like Stanley Faber; philosophers like Schelling; naturalists like Newport, Wallich, Jameson, G. B. Sowerby, Webb, Forbes, Bischoff, Mirbel; poets and men of letters like Silvio Pellico, John Wilson, James Montgomery, Caroline Bowles, Emily Judson, Sir T. Noon Talfourd; and artists like Martin; we have now to add the names of Léon

Faucher, the great Free-trader among the political economists of France ; John Gibson Lockhart, the clever editor of the "Quarterly Review ;" Dr. Kitto, the illustrator of Scripture ; and Dr. Barth, the traveller, who, after reaching that forlorn terminus of African adventure, Timbuctoo, has shared the fate of his gallant predecessor Major Laing.

But our limits forbid a longer retrospect, and hardly leave us room to glance at the new literature at this moment on our table.

Mr. Leone Levi has published a "Manual of the Mercantile Law of Great Britain and Ireland." Although primarily designed as a text-book for the students attending the author's classes in King's College, the work is sufficiently complete for private perusal, and is so free from technical terms as to be intelligible to lay readers like ourselves. Mr. Levi's great work, "On the Commercial Law of the World," has excited much attention in other countries, as well as in Britain, and has been decorated with gold medals by the sovereigns of Austria and Prussia. We understand that there is every likelihood that a conference on the subject of a common mercantile code for all nations will be held at Paris during the "Exposition" of next summer ; and should the happy consummation be at last brought about, no small share in the honour will be due to him whose Herculean labours have left an easier task to his successors.

In "The Ladies of the Reformation" the Rev. James Anderson has given, with admirable taste and fidelity, the history of the most distinguished female worthies who adorned this country and the Netherlands in the sixteenth century. "Preces Paulinæ" is a series of meditations on the prayers of St. Paul, by an anonymous but devout and accomplished author, and is an interesting idea beautifully worked out ; whilst in "The Footsteps of St. Paul," by the

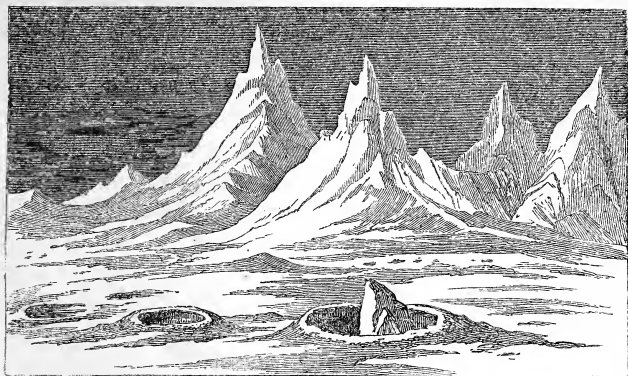
author of "The Faithful Promiser," we have the apostle's biography narrated in a style instructive to the old and engaging to the young. "The Vision of Prophecy, and other Poems," by the Rev. J. D. Burns, are the forth-pouring of a mind rarely gifted and richly furnished, with all its tender affections and holy aspirations, in verse of unusual melody. And although "Philosophy at the Foot of the Cross," by James Augustus St. John, does not accord in some important particulars with our own apprehension of the truth, we cannot withhold the tribute of our admiration from its exquisite imagery and from those faithful confessions in which, "as face answers to face," many a wistful spirit will recognise its own facsimile. We do not expect many readers for the "Literary Remains and Autobiography of H. Fynes Clinton," with a journal written occasionally in Latin or Greek; but it is a noble record of literary enthusiasm, and will be a great treat to many a scholar. "The Englishwoman in Russia" contains many curious details of Russian home-life and habits, without any profound analysis of Russian character. When we opened Mr. Edgar's "History for Boys," we could not think how he had condensed the whole of modern Europe into a cabinet volume; but after reading some of its clear and unencumbered narrative, we can recommend it as well fitted to familiarise our youthful readers with the great landmarks in modern history. "The Peasant Boy Philosopher," by Henry Mayhew, is Joyce's "Scientific Dialogues" translated into a very charming romance, and must be kept out of the hands of youngsters who show too great a turn for mechanics or useful knowledge; just as "The Forest Exiles," by Capt. Mayne Reid, is enough to send off every schoolboy to the Wilds of the Amazon. Of these last volumes neither can be surpassed, — the one as a charming introduction to natural philosophy, the other as an enticement to the study of natural history.

In "Knowledge is Power," Mr. Knight has provided the lovers of sound information with a store which they will not quickly exhaust, but so various and inviting that they will not readily tire.

This is the season which used to effloresce in "Evergreens," and "Forget-me-nots," and all that showy tribe of New-Year Annuals,—for which the artist and binder did more than the author. No doubt, famous poets contributed sonnets and ghost-stories; but these sweepings of the study formed a tawdry frame for the sketches of Turner and the engravings of Finden. But, thanks to improving taste, a better system is beginning to prevail, and the season of gift-books is now the occasion for bringing out splendid editions of the favourite bards of Britain. The change is a happy one. We congratulate the poets who paint and engrave on their fellowship with the poets who sing; and now that they are "married to immortal verse," their pictures need not fear the early widowhood and the consequent Indian immolation to which they were doomed when mated to those short-lived Annuals. We have now before us several of those exquisite volumes, in all the attraction of green, and scarlet, and gold,—with pictures and a letter-press on the rich creamy page, so charming as to form of themselves "a vision of delight." We can only add their names, leaving it to Friendship to select its congenial offering. Cowper's "Task," illustrated by Birket Foster (Nisbet); Longfellow's "Golden Legend," illustrated by Birket Foster and Jane E. Hay (Bogue); Milton's "L'Allegro and Il Penseroso," with etchings on steel by B. Foster (Bogue); Goldsmith's "Deserted Village," illustrated by the Etching Club (Low); Scott's "Marmion," illustrated by B. Foster and John Gilbert (Black).



The Wild Boar of Syria and Egypt. (Sus Scrofa.)



NIGHT VIEWS FROM MY WINDOW.

LUNAR SCENERY.

As I draw back the curtain, a flood of pale, silvery light streams into the quiet room where I take my post for a good portion of the night,—to me ever a period of the purest, the most peaceful, and, I may add, profitable enjoyment. And now the window is open, and there is nothing between me and Heaven, but the dark sky, and the brilliant moon and stars, the work of God's fingers, unobscured by a cloud. It is strange what a difference there is between an open and a closed window. When thus gazing upwards, glass,—even the clearest and the purest,—always gives a sensation of restraint, more or less. You feel there is something material still between you and the boundless depths above,—the mighty expanse into which you look, and where you would fain wander; but, that once removed, and an undefinable sense of liberty—freedom from all physical restraint—is experienced, and you may soar

away at will. The mind becomes endowed, as it were, with an angelic power and desire, which, although it is for the present denied to the body, will, no doubt, be one day permitted to both to exercise far more fully than at present; such a sensation, possibly, as St. Paul experienced in anticipation when he was "caught up to the third heavens,"* with feelings so strange that, as he avers, he could not tell whether he was "in the body or out of the body."

This desire to explore undiscovered regions seems to be deeply implanted in the mind by God. The traveller who stands upon the summit of a lofty mountain, and looks down upon some strange country as it lies stretched beneath his feet, and marks its undulating hills, its sunny valleys, its green forests, its blue lakes, its winding rivers, and, above all, sees the towers of its peopled cities scattered through the land, is at once carried there in spirit, and an irresistible desire impels him to explore, to seek, to discover, to admire. Or if from the deck of a vessel entering for the first time the studded ocean of the blue Pacific he surveys the innumerable islands which float in their coral beauty, and repose upon the calm wave; if he sees their lofty mountain-peaks shining in purple and gold, say whether he will not feel an irresistible desire to examine them? Will not the distance be annihilated in the quick imagination which already has lent the ship wings for sails, and has landed him at once upon their bright shores? Now, such is the feeling, so far as I can trace it, that is experienced by one who is conver-

* The Hebrews acknowledge three heavens:—

1. The aerial heavens, where the birds fly, the winds blow, and the showers are formed,—in short, the atmosphere.

2. The starry heaven or firmament, wherein the heavenly bodies are disposed. And,

3. The heaven of heavens, or third heaven, as St. Paul calls it, which is the place of God's residence, the dwelling of the angels and the blessed.

sant with the celestial world, when gazing upward at the illimitable and undiscovered regions there, surveying them as they stretch themselves out before you in their immensity, or examining them separately and minutely in their glorious and wonderful detail, their numberless star-islands floating in their own peculiar ocean, and doubtless peopled by their own peculiar inhabitants, and encompassed by their own peculiar and solemn glory—for “the glory of the celestial is one, and the glory of the terrestrial is another.” Surveying all this—to the mind so engaged space diminishes, distant worlds draw near, skies bend over you, and stars look down upon you with calm and lustrous, but sweet and familiar gaze ; the murmur from planetary worlds becomes audible to the mind ; the earth is no longer regarded as the only place inhabited by Intelligence or Immortality, and the grain of dust on which we live as the only country to be explored and examined. Creation widens and expands, a novel sphere of discovery is opened to the inquirer—ten thousand new and unsuspected countries burst upon the sight, and extend themselves before you as a boundless map of sparkling glory. Their nature, their movements, their gigantic size, their terrible swiftness, their silent beauty, their inconceivable distances ; the order, the skill, the wisdom of their varied motions and arrangements, their surpassing splendour and loveliness—all presents a scene to the eye unparalleled by anything terrestrial ; so grand as well-nigh to overwhelm the mind, but so silent and peaceful in their grandeur as to soothe even while they astonish ; and so intelligible in their speaking glory that, in the words of the Psalmist, it may be said of them, “Day unto day uttereth speech, and night unto night showeth knowledge ; there is no speech nor language where their voice is not heard ; their line is gone out through all the earth, and their words to the end of the world.” Filled with such thoughts as those then, and animated by

the strong desire I have mentioned, I endeavour to gratify it in the only way in which, with our present limitations, it is possible, viz., by enlarging my powers of vision.

With a telescope for at once my guide and my bark, I launch forth through the silent night into the dark ocean of space above me. I strike out into the remotest regions of the universe,—I transport myself at will to worlds whose light would never reach the retina of my eye, save through the wonderful instrument whose field it illumines. In imparting to man this discovery, God seems to have yielded to this principle which He first implanted within us, and then afforded us an opportunity thus to exercise ; and with that instrument—whose Greek nomenclature happily explains its power—we can not only see things afar off, but absolutely out of ordinary sight altogether. Like the faith of the Christian, the telescope is to us “the evidence of things not seen” without its aid ; but, armed with this huge artificial eye—for it is nothing more—numbers and figures in vain record, and the imagination as vainly conceives, the distance to which we are borne. Possibly, indeed, there may be Beings in the universe whose eyes are as telescopes, who can see us now from their distant planet, though we cannot see them. We know, at all events, that a very slight alteration in the construction and organisation of the human eye would enable us to see as well as we now can with the most powerful telescope. Already we must have remarked the different powers of sight possessed by different individuals ; the cause of these differences is well known. A few degrees more of improvement beyond what we possess now, and man’s unassisted sight would pierce the remotest heavens.

Thus prepared, then, I take my post, I keep my watch to-night.

There is something at once soothing and exciting in this midnight, breathless stillness of the terrestrial world,

and the calm, divine repose of the celestial regions, whither I am about to journey. The air is so still that the least sound becomes audible. I hear the midnight chime of the bells from the distant city; and now, as the sound dies away, the roar of the surf as it breaks with softened murmur, tossing its green waves and glittering spray in the clear moonlight upon the neighbouring shore: but nought else, save now and then the gentle rustle of a withered leaf as it falls without, or the impatient chirrup of the little bird whose sleep I have disturbed in the clustering passion-flower that hangs in dark masses from the window. I direct my telescope to the heavens, and, passing it slowly from star to star, I at length fix it upon that bright moon, now in her first quarter. I apply my eye to the glass, and now—what do I see? It brings that beauteous globe so near that I am absolutely upon it; but what a strange metamorphosis! No one who has been accustomed to see it from the earth would recognise it. Like a face which appears beautiful at a distance, but is found full of wrinkles and imperfections when close to it; so our lovely satellite, whose beauty has lent inspiration to the poet's verse, and her charm to the painter's landscape, loses her perfections in a moment. She is no longer the soft, tender, liquid, silvery thing, whose familiar face we love, and whose beams we hail, whether breaking through the sea of clouds among which she sails, or whitening the grey ruin, or shining on the placid lake, or the waveless sea. No; I perceive a huge bright mass, full of holes, rents, and fissures: it is a strange-looking country, indeed, that we have arrived at—a wonderful place, unlike anything we could have imagined, so different indeed from the expectations usually formed by those who (hearing of mountains and valleys in the moon) long to see them, that, to prevent disappointment, some explanation is necessary to enable such persons to understand what they see, and teach

them what to look for and how to find and appreciate the objects of interest there. To such of our readers, then, as are unaccustomed to telescopic observation, I would say, there are a few obstacles in the way of appreciating lunar scenery which you must be prepared for beforehand. For instance, at the first moment your eye is applied to the telescope (say, with a power of 120 upon it), you will find yourself within 2000 miles only of the moon ; in fact, you will see it precisely as you would if you were removed bodily and placed upon a planet separated from it by that interval: short, indeed, when compared with the actual distance of the moon from the earth (240,000 miles) or with other astronomical intervals, and yet still very considerable, as can easily be understood by thinking what a distance 2000 miles is with reference to any terrestrial object,—it is, in fact, equal to a fourth part of the diameter of our globe, or one entire diameter of the moon from herself. At such a distance here, were a bird's-eye view possible, how little could be discerned ! At this distance, indeed, it is plain no minute object could be seen ; but yet it is astonishing how much is visible, and the general features of the lunar surface are at once quite perceptible to the practised eye. But there are three striking effects in particular which this proximity immediately produces. The first is increase of brightness, as when a lamp or candle is brought close to the eye. The second is increase of size, or the angle subtended at the eye ; and the third, distinctness of shape, both as to the general figure of the moon herself, and the objects discernible upon her surface. The first of these is intense, and even painful to the eye not accustomed to it, so that an inexperienced observer sees but comparatively little at first from the glare. If he wait a little, however, the eye soon accommodates itself to the brightness, as it does to the darkness. It is, however, a good plan with powerful telescopes (as there is

always abundance of light to spare), to shut off a portion of it by a diaphragm upon the object-glass, which likewise has the effect of increasing the distinctness.

The second effect, increase of size, is not so perceptible as might be imagined ; and there are few telescopic effects in which the eye is deceived more than in forming an estimate of the size of objects. A power such as I have mentioned would increase the size of the moon superficially 120 times, so that in the portion of the lunar surface before the eye, all comprised within the space, say of a 4-inch achromatic, such as I am now using, you have an image of the moon magnified 120 times, or 120 times larger than as seen with the naked eye. This amount of magnifying power will have the immediate effect, not of swelling the dimensions of the moon accordingly, which the ignorant or inexperienced might expect, but which a moment's reflection will show to be impossible, as the space you can see must be limited by the actual size of the aperture, but it will have the effect of enabling you to see a *small portion only* of the body made so much larger by optical power, that it cannot fit, as it were, within the small aperture through which you look, and only presents a small portion of its surface at a time, leaving to your imagination the remainder of a huge moon to be examined in its various parts in succession, by simply traversing or moving the telescope over it. The extent of surface, therefore, which you can see upon the moon, will diminish with the increase of magnifying power ; just as in approaching a large city from a distance, at first you obtain a *coup d'œil* of the entire, but as you draw near to it, you see only a street, and at length a single house is sufficient to occupy the entire field of view. So with a power of about 90, you may see the entire disc of the moon at once, but increase the power to 250, and little more than a single crater, with its adjoining neighbourhood, is visible.

The third effect necessary to be prepared for is with reference to the objects which, under telescopic power, become visible distinctly on the lunar surface. Many of these you have never seen anything like before, you are at once led therefore to compare them with, or find a resemblance for them in, something that you *have* seen. This is likely to mislead by conveying a false impression ; the colour for instance, which resembles plaster of Paris, or the innumerable holes or excrescences, which look like bubbles floating upon oil, or caused by fermentation or decay : all these comparisons, which are derived from terrestrial things, are false and must be dismissed ; in fact, you see a perfectly new and strange object, unlike anything terrestrial that could convey to your mind a true resemblance of it. And then, when you have got over all this, and found that the mountains and valleys of the moon you have heard of are not like our valleys, or mountains, or soil, and you at length have succeeded in realising the fact that that great, glaring thing, covered with holes and spots, is really a vast planet or world, there remains the difficulty of realising the size of the separate objects which you see so distinctly—together with the vast distances over which the eye can travel in an instant. A prospect, in fact, is opened to you which could never be seen on earth—even from the loftiest mountain in the world, viz. an extent of 2000 miles, or an area of seven millions of square miles, stretched beneath you ; a plain of 1500 miles appearing but a little patch as in a map, and mountains rivalling the Alps or Andes as a boundary or shading slightly elevated. And yet this, too, can be overcome by a little patient observation, by minute attention to each separate object ; marking not only the object itself, but the shadow it casts. When once the secret of telescopic observation of the moon is thus acquired, there is nothing more delightful than to wander through its

grand and terrible scenery, and no more effort will be required than is necessary to accommodate the gigantic proportions of *our* Alpine regions to the diminutive representation of them by the Artist in a picture one foot square.

And now, where are we to-night? A more beautiful or picturesque portion of the lunar country we could not have fallen upon. We have dropped from our terrestrial sphere right over Copernicus; and from one of the lofty peaks of a cluster of mountains a little to the southward of that remarkable crater—down into the very mouth of one of which, indeed, I can partially see,—let us take our position. What a scene is here! Beneath our feet some thousand feet below, spreads the vast plain of the Mare Imbrium, or Sea of Showers; it is shining in the glare of the fierce light that beats upon it from the rising sun of a lunar morning—whose day will not end for a fortnight—and whose long, black shadows are projecting from a thousand mountain-peaks, whose tops shine like silver, and are scattered over the plain here and there, some in lonely grandeur, others like the well-defined and dark semicircular chain of the Apennines, extending like a continuous craggy coast-line for 600 miles, forming the extreme boundary of the solitary desert they enclose. The shapes of these mountains are discernible upon the plain over which their shadows extend; and there can be no mistake here as to either their configuration or height. The former Nature has thus sketched for us more truly than any artist; and we have only to measure with a micrometer the inky, black outline that lies upon the brilliant surface below, to put ourselves in possession of the latter; and, truly, nothing that earth can produce in her wildest and boldest mountain scenery can come near to the rugged and precipitous character of this gigantic range, some of which rise to the height of 17,000 feet, with summits as sharp as spear-heads; while broken into tre-

mendous precipices, their irregular and fantastic forms, although reminding us of the ice-peaks amid the glaciers of Switzerland and the snow-capped summits of Mont Blanc, are yet marked by a character peculiarly their own, and in the highest degree picturesque and striking, while the imagination placing you before them and compelling you to stand gazing up at them from that burning solitary plain in that breathless world, and contemplating their frowning precipices, their gloomy chasms, and their lofty peaks, and their silent, waveless shores, overpowers you with sensations which no terrestrial scene, however grand, can give, and which no words can adequately express.

But what of the plain? It is called the Sea of Showers. It seems a vast plain of sand,—a sterile desert like the Great Sahara of Africa, or any of our own terrestrial flats. To me, at least, it has a soft, and slavery, and smooth look that conveys irresistibly the idea of sand, or something analogous to it. Certainly no water is there to cool or moisten it now, whatever may have been its former history; and no change whatever has been observed upon its surface such as would be caused by the movements or works of living creatures. After sixteen years' frequent observation, I can say with truth, that nothing could be more perfectly changeless than the face of that silent, ghastly plain. I remember, when first I commenced lunar observations, looking many a night with intense eagerness in the hopes of discovering (and thus immortalising myself by so doing, as I thought,) some change, however slight—but no—no cloud, however faint, dimmed it—no shadow stole over it. On the same spots the same marks, shadows, and craters, reappeared in their silent calmness and majesty, or silvery beauty, or desolate wildness; but nothing moved, nothing changed: and were I there, I feel convinced I should find that nothing breathed or stirred, nor has stirred for ages—that

perfect silence reigns over its desert shores—and motionless, noiseless, breathless, windless nature broods over that arid waste; and yet, I must acknowledge, it looks very like the bottom of a dried-up ocean of former days. Mysterious wavy irregularities creep over its surface like sand-hillocks, thrown up by the action of water, or perchance of wind, but more like the former. Such are the Escars we find in Ireland, one of which I have myself seen in Galway, which extends for thirty or forty miles. The different lights and shades, too, seem to indicate different depths of bottom, as is experienced with the sounding line; and its boundaries or shores, as we may call them, bend into curved bays (such as the Bay of Rainbows), run into creeks, and jut out into promontories, just as we find on the shores of our terrestrial oceans, washed away as they are by the perpetual beat and thunder of the waves.

But, however this may have been, certain it is that not a single drop of water or any liquid whatever evidently exists upon them now. This is the decided conclusion of the telescope which brings every portion of the surface, even to the space of seventy yards, which Lord Rosse's telescope can present to the eye as a visible area, before the sight. This (not to appeal to any other testimony) would in itself be sufficient—as there is not the least doubt, if *there*, water would be seen.

What are we to conclude, then, as to these dry seas or basins which stretch their immense superficies over the lunar surface? Evidently there can be but two hypotheses concerning them, either that they are a preparation for *future*, or the old dried-up basins of *former* oceans. Astronomers have hitherto been inclined to the former opinion as being the more probable; chiefly, indeed, from the abrupt and precipitous manner in which the mountain-chains descend to the seas, the slope being generally towards the land side,

while a steep wall of rock is presented to the plain. This would imply the absence of all abrasion or attrition by the power of water against the lunar shores. Closer observation, however, together with the possession of more perfect instruments, has removed, in a great measure, this objection ; and Professor Phillips,* at the last meeting of the British Association, gave his testimony most strongly in favour of the latter opinion ; viz., that, although it is probable not a drop of water exists now upon our satellite in the shape of oceans, it is not so clear that it may not have existed there once ; and that the dry plains we behold are, in fact, but the beds of oceans now no more.

My own observation concurs fully with this, in fact, I cannot see the soft, wavy outline of those shores, with their sinuous bays and rounded promontories and creeks, and their apparently soft and billowy, sandy surface, together with the undulating character of their scenery, without being deeply impressed with the conviction that water once rolled over them, and waves tossed high their lunar spray as they dashed against those rugged and dreary, but now silent coasts.

J. C.

* The following is an extract from the observations of Professor Phillips upon this subject, at the last meeting of the British Association :—" Prof. Phillips observed, that although there might be no sign of the existence of water on the present surface of the moon, he thought there were many indications of former aqueous action ; there were elevations, like the ' escars ' of Sweden and Ireland, and small gullies converging into larger, like the channels of mountain-streams." He also called attention to the narrow, dark lines, many miles in length, occasioned by shadows, which change with the direction of the sunlight, showing that the level is higher on the one side than on the other.—*Athenæum*, Sept. 30th, 1854.

(To be continued.)

LIFE, IN ITS INTERMEDIATE FORMS.

No. I.

ANNELIDA.

THE forms of animate existence which we have briefly examined in the previous volumes of "Excelsior," may be likened to the humbler ranks of society; the Vertebrata are certainly the aristocracy; but between these there ranges a great middle class, the most populous, the most ingenious, and in some respects the most interesting, of the whole. They constitute the important divisions which naturalists term ARTICULATA and MOLLUSCA.

We have alluded to the populousness of these sections: a single subdivision of one of them (Insects) is believed to be at least twenty times as numerous in species as all other animals put together.*

We do not expect our readers to study technical zoology at the breakfast-table, nor to make a dish of prawns the text of a lecture; but still, if the function of the palate have not utterly extinguished that of the eye, they can scarcely have picked one of those dainty animals to pieces

* Some years ago an eminent zoologist gave the following table as his estimate of the probable number of existing species of animals, deduced from facts and principles then known. Later discoveries tend to increase rather than to diminish the estimate.

Quadrupeds	1,200	Worms	2,500
Birds	6,800	Radiata	1,000
Reptiles	1,500	Polypes, &c. ..	1,530
Fishes	8,000	Testacea	4,500
Insects	550,000	Naked Testacea ..	600

making an aggregate of 577,600 species. (Swainson's "Geog. and Classif. of Quadrupeds," p. 28.)

without having observed that it is encased in a sort of armour composed of many rings, the edges of which overlap, and which thus work one within the other. This circumstance forms the most prominent characteristic of a grand division of living beings, which are thence called *ANNULOSA* (ringed), or *ARTICULATA* (jointed animals). Another mark of distinction is that their skeleton is external; the outer skin, hardened in most cases into a horny crust, affording attachment to the muscles, and giving by its solidity and resistance precision and force to their contractions. In some cases, indeed, this structure is less obvious, the skin being rather membranous than crustaceous, but even there it is more tough and leathery than the internal parts.

But the most important distinction of all, though it is one which is appreciated only by the anatomist, is the condition of the nervous system. That remarkable substance, *neurine*,—which is the material seat of all sensation, and the proximate source of all motion, the ultimate link of matter, whereby the spirit lays hold of it,—is either not discernible at all in the inferior creatures we have been considering, or else exists only in the form of slender threads, without any centres of accumulation. We now no longer find it in this rudimentary condition. In the Articulate animals there is a distinct arrangement of the nerves, which run down the middle of the body in two parallel cords, united at certain intervals by knobs or aggregations of the nervous substance called ganglions, which send forth ramifying threads on each side, thus distributing sensibility to all parts of the body.

There is in all these creatures a distinct head,* furnished with various organs of sense; and for the supply of these the nervous matter is more abundant there than in other parts,

* In some of the Worms, indeed, the head does not exist in its ordinary distinct form, but the organs of sense are present, and the exception is more apparent than real.

forming a thick ring round the gullet and uniting into an enlarged ganglion above it. In conformity with this concentrated condition of the nervous system, the animals which we have now to do with display a perfection of sense, an energy of motion, and a versatility of instinct, which are unknown to those ranks that are below them in the vital scale. In all these qualities, as well as in the physical peculiarities which we have enumerated, there exists considerable diversity ; so that the great division before us is naturally divided into several subordinate, but still important groups.

We could not in these pages review every link in the vast chain of Nature, though we may safely predicate that there is not one which would not well repay the investigation by some fresh evidence of the perfections of the Godhead ; not one which would not testify with fulness and clearness,—

“ The hand that made us is divine ! ”

The humblest class of Articulated animals is that of the Worms (*ANNELIDA*), which are not very remotely separated from those lengthened forms of *ECHINODERMATA*, which we lately considered. An Earth-worm or a Leech is not, indeed, an articulate animal, strictly so called ; but it is an annulose one, for its body is composed of an immense number of rings, which, partially slipping one within the other, impart the power of alternate contraction and elongation, which is so remarkable in these creatures.

Scarcely a single oyster can be dredged from deep water, especially if the ground be rocky, without its being more or less covered with shelly tubes, which sprawl and twist over its surface in various contortions, so firmly adhering to it as not to be removed without fracture. Stones, pieces of crockery, broken glass, and all sorts of shells, are liable to be overspread with these white pipes, after they have been

immersed a short time in the sea ; and similar structures occur, of a smaller kind, about the pebbles that lie on the shore near low-water mark. These are the dwellings of marine worms called *Serpulæ*.

If we select a shell on which is seated a cluster of these pipes, and put it into a basin of sea-water, we shall soon be delighted with a brilliant spectacle. Let us suppose the tubes to be of that kind which is about as thick as a tobacco-pipe, which is adherent for the most part of its length, but rears upward at its extremity, and displays a smooth circular mouth (*Serpula contortuplicata*). Down in the depth of the interior we presently discern what resembles a cork of a bottle, gradually pushed up till it reaches the orifice, which it accurately fits. It is a conical stopper, of a brilliant scarlet hue, marked with a number of ridged lines all diverging from the centre.

The stopper still emerges, and we see that it forms the end of a long, slender stem, which is slowly pushed out to make room for other emerging organs in the form of a double fan of scarlet threads radiating from a sort of collar, and arranged somewhat like two petals of a flower, with a deep bend or sinuosity where they unite.

The extreme beauty of the display cannot but elicit our admiration ; we raise a finger to point out some particular item to a companion, when, lo ! the whole apparatus disappears like a vision ; with the speed of thought, the whole has been retracted into the pipe, the stopper entering last of all, and tightly closing the aperture.

Our friend *Serpula* is an exceedingly prudent personage, and will not soon emerge from his strong castle again, after receiving such a fright as the lifted finger gave to his sensitive ganglia ; and when he does, it will not be without great caution. Meanwhile, as we are waiting his reappearance, we will briefly discuss some points of his organisation.

Those beautiful fan-shaped petals are gills, the breathing organs of the animal, whereby he derives from the sea-water the oxygen necessary for the renewal of the blood, which is constantly exhausted in the building-up of the various tissues. Their situation at the anterior extremity of the body is a wise provision, since they can by this arrangement be periodically bathed in the surrounding water, with the least possible exposure of the animal. In other species, however, which do not inhabit tubes, the gills are situated on other parts of the body. Thus in the common Lug (*Arenicola*), or Mud-worm, so well known to every fisherman for its value as bait, the gills form little tufts of a crimson hue on the rings of the middle part only. While on the exquisite Leaf-worms (*Phyllodoce*) they resemble heart-shaped leaves, arranged in a row on each side throughout the entire length.

That singular stopper, of which the function is so manifest, is one of a pair of tentacles; organs which in general are exactly alike. Here, however, one is destined to close the orifice, and as one only could perform that office, the other is quite plain, a simple thread, while this is enlarged into a conical plug. What wise contrivance is manifested here!

We wondered at the extraordinary rapidity with which the timid animal disappeared on alarm, and are curious to know the mechanism by which it is effected. Each of the rings of which the body is composed carries on each side a little wart-like foot, within which is a bundle of horny bristles, like the filaments of a hair-pencil, capable of being protruded and withdrawn. The microscopic structure of these is most elaborate, but we cannot detail it here; it may be sufficient to say that it is by the protrusion of these pencils in turn, which press backwards against the sides of the tube, that the animal pushes its foreparts out.

But the retreat requires a more powerful machinery for its extraordinary fleetness ; and this deserves a more close investigation. On carefully examining a *Serpula* recently dead, we observe, by means of a lens, a pale, yellow line running along the upper surface of each foot, transversely to the length of the body. This is the border of an excessively delicate membrane, and on placing it under a high power (say 300 diameters) we are astonished at the elaborate provision here made for prehension. This yellow line, which cannot be appreciated by the unassisted eye, is a small muscular ribbon, on which stand up edgewise a multitude of what we may call combs, or rather sub-triangular plates. The edge of each plate is cut very regularly into six sharp teeth, which curve in one direction, and one other, curved so as to face these. The combs stand side by side, parallel to each other, along the whole length of the ribbon ; and there are muscular bands or fibres seen affixed to the smaller end of every plate, which doubtless give it independent motion. We have counted one hundred and thirty-six plates on one ribbon ; there are two ribbons on each thoracic segment, and there are seven such segments ; hence we may compute the total number of prehensile comb-like plates to be about one thousand nine hundred, each of which is wielded by muscles at the will of the animal ; while, as each plate carries seven teeth, there are between thirteen and fourteen thousand teeth hooked into the minute cavities and roughnesses of the interior surface of the cell, when the animal chooses to descend. No wonder, with so many muscles wielding so many grappling hooks, that the retreat is so rapidly effected !

The bundles of bristles which line the wart-like feet, are very extensively found in this class of animals ; and in some species they exhibit strange and singular forms, resembling the fantastic but formidable weapons of some semi-savage

people. Thus in a flat scaly worm (*Polynoe*), common enough under stones at the water's edge, the armoury consists of several sorts of weapons. First, there are long lances made like scythe-blades set on a staff, with a hook at the tip to capture the fleeing foe, and bring him within reach of the blade. Among them are others of similar shape, but with the edge cut into delicate slanting notches, which run along the sides of the blade, like those on the edge of our reaping-hooks. These are chiefly the weapons of the lower bundle ; those of the upper are still more imposing. The outmost are short, curved clubs, armed with a row of shark's teeth to make them more fatal ; these surround a cluster of spears, the long heads of which are furnished with a double row of the same appendages ; and lengthened scimeters, the curved edges of which are cut into teeth like a saw. To add to the effect, imagine that all these weapons are forged out of the clearest glass instead of steel ; that the larger bundles may contain about fifty, and the smaller half as many, each ; that there are four bundles on every segment, and that the body is composed of twenty-five such segments ; and you will have a tolerable idea of the garniture and armature of this little worm, that grubs about in the mud at low-water mark.

Some of the Worms, both of the sea, and of fresh-waters, manifest a singular power of self-multiplication. In one or two species of *Syllis*, and in some of the genus *Nais*, the last segment of the body increases in size, and becomes marked with segments, which grow more and more distinct ; in time, a head begins to form at the anterior end, which is furnished with antennæ. At length this strangely-made animal breaks off from the parent, and enters upon an independent existence. The facts have been denied ; but we can give the testimony of personal observation to their truth, having witnessed the process in both the genera above mentioned.

Many of the marine Worms are remarkable for gorgeousness of colouring; and not a few display opaline reflections and metallic changes of hue of great splendour. There is a species, by no means rare on our coasts, called the Sea-Mouse (*Aphrodite*), which rivals the humming-birds in the magnificence of its array. It is a curious animal in many respects. The form is unusual, being somewhat oval; a flattened, unshapely creature, about an inch and a half in breadth, and some three or four inches long, of a dusky brown hue, except at the sides, which are clothed with a dense coat of long, slender bristles. It is in these that the creature's glory resides. This clothing reflects the most glowing prismatic colours, crimson, scarlet, orange, yellow, green, blue, and purple, ever varying according to the angle at which the rays are reflected to the observer's eye. Thus are verified the lines so familiar to our infancy :

“ Let me be dress'd fine as I will,
Flies, *worms*, and flowers, exceed me still.”

In another allied species the side bristles exhibit a structure, which admirably adapts them for weapons of defence. The tip of each bristle is a barbed spear, being beset on two sides with numerous points directed backwards. As these bundles of spears are retractile, however, the tender flesh of the animal would be liable to laceration when they are withdrawn into the interior of the foot; but a beautiful provision is made to meet this emergency. Each of the barbed javelins is furnished with two membraneous blades, between which it is enclosed, in repose; these prevent the points from coming into contact with its own flesh, while they readily open, and offer no impediment to the extrusion of the weapon.

In the common Earth-worm (*Lumbricus*), the rings are very numerous, and each ring is furnished with eight retrac-

tile bristles, by means of which it traverses its long burrows. Mr. Charles Darwin has satisfactorily proved that earth-worms are most valuable agents in fertilising lands, especially in undisturbed pastures, gradually covering the surface with their casts, and thus forming a layer of finely pulverised earth of the richest character. A field which had been limed was examined after about eighty years, when the lime was found to be evenly covered, to the depth of thirteen inches, with this animal mould.*

The Leeches (*Hirudo*, &c.) are not provided with bristles for locomotion; but a compensation is given them in the form of a sucking disk at each extremity. They move, as is well known, by the alternate adhesion and detachment of each sucker. The Medicinal Leech (*H. medicinalis*) performs its useful office, under the concealment of one of these suckers; and hence its mode of action is not generally known. Its mouth is furnished with three small semi-oval tubercles arranged in a triangle, the upper edge of each tubercle being cut into minute but sharply serrate teeth. When a vacuum is made beneath the anterior sucker, these tubercles are brought into close contact with the skin of the patient: proper muscles then move them to and fro in a saw-like fashion, when the minute teeth presently cut through the skin and superficial vessels, and the blood flows profusely, under the atmospheric pressure, into the stomach of the Leech.

It is very remarkable that blood is not the natural food of the Leech; and that the fluid which it so greedily swallows does not pass into the intestine, but remains in the stomach for many months; and, what is still more curious, it does not coagulate during the whole of that time, as it would do in an hour if exposed to the air, but continues to retain its fluidity. Hence it has been not unreasonably

* Proceed. Geol. Soc. vol. ii.

concluded that this habit is rather a special provision ordained by the Divine mercy to render these creatures subservient to the alleviation of human suffering than necessary to supply the wants of the animals themselves.

We must not, however, suppose that the "convenience, health, or safety" of man is the only object of the creative wisdom of God. There are numberless provisions expressly made for the comfort and well-being of the inferior creatures themselves; and no creature is so mean, worthless, or humble, but it has been the object of His paternal care in multitudinous instances, a few of which only, doubtless, we are cognisant of. Two or three examples of benevolent foresight and curious contrivance have been mentioned in this paper, and the enumeration might be extended almost *ad libitum*; but these are sufficient to show that God cares not only for sparrows, but even for worms also.

What, then, shall we infer from hence? Shall we take up the infidel sentiment of the poet, so unjustly belauded,—

" He sees with *equal eye*, as God of all,
A hero perish or a sparrow fall;
Atoms and systems into ruin hurl'd,
And now a bubble burst, and now a world?"

Nay, rather, let our comfortable conclusion be, that which our Lord Jesus teaches us to draw from analogous examples: "If God therefore so clothe the grass of the field, which to-day is and to-morrow is cast into the oven, shall He not *much more* clothe you?" "Ye are of *more value* than many sparrows."

P. H. G.

ENGLISH LETTER-WRITERS.

HORACE WALPOLE.

NONCHALANCE and easy levity are not genuine Anglo-Saxon characteristics. The Englishman may sometimes trifle, but his genius is essentially grave and earnest. He acts as though success depends, in business, upon every word,—in law, on every brief,—in literature, on every book, and every review of every book,—in war, on every movement,—in love, on every look.

Even in his amusements he is solemn. As Froissart said of him long ago, he takes his pleasures sadly. Nothing can be graver than his dancing, and when he laughs we say truly that his features *relax*. He speaks ponderously about trifles, and when he jokes, or, as it is said, enjoys a joke, he is oftener proud than amused. He is good-humoured, and sometimes boisterously, sometimes serenely, merry; but he is hardly ever *gracefully* gay.

If this is a defect we must respect the cause of it. Our fellow-countryman is generally fully occupied. He is not happy when he is idle. His powers are then most vividly developed when he has plenty to do; when he is facing perils or encountering difficulties; trying to help others, or to advance himself. And he is sincere. There is an air of truth about him. He may be proud, but he is not vain. He walks erect. And if in his solemn port there are a certain stiffness and want of grace, it is evident that at least he is no hypocrite. He is not one to smile, and smile, and smile,—and be a villain. Perhaps he is even too impatient of the fashionable fine gentleman:—but the “carpet knight,” with his trim fopperies, and exquisite im-

pertinences, has excited ungovernable indignation in the bosom of the genuine Anglo-Saxon, as often as he has crossed his path, ever since the days of Harry Hotspur.

In our last paper we spoke of Cowper. That good, sad man was eminently true. Disease never spoiled that part of his character. He was morbid and self-tormented, but he was genuine and in earnest. We are now about to speak of one who was the very opposite.

HORACE WALPOLE'S character was made up of contradictions. He was witty and weak, ambitious and trivial. He had great abilities and unequalled opportunities. In that barren age he might, with his talents, have made himself a leading man in literature; he might, with his birth and position, have made himself a leading man in politics. He did neither. He was satisfied to be a man of petty whims, instead of lofty pursuits,—an elegant idler, and an antiquarian fop.

He was as vain as he was clever, and as changeable as he was vain. One day he pretended to hate kings; the next he wrote lovingly about Royal Authors. He inscribed under a copy of the death-warrant of Charles I. the words *Major Charta*,—and remembered with rapture that he had been presented to and kissed by George I. when ten years old. He courted fame, but made believe to shrink from popularity. He was an author, and, as such, most painfully correct; but he would not allow himself to be classed with men who sometimes wanted a coat to their backs. Hood might have drawn from life, and not from imagination, when he described a man who would not identify himself with the members of the Republic of letters,—because there was not a Sovereign among them! Truth herself would not have been admitted to Strawberry Hill unless she was costumed *à la mode*. He was vain by disposition, and cold by temperament. He was liberal in theory, and parsimonious

monious in practice. He was serious about trifles ; a trifler about matters of importance. He was a vivid, ill-natured, and witty gossip ; a vacillating and insincere thinker ; a selfish friend, and a spiteful enemy. But, fickle and facing-both-ways as he was in regard to this world, he was unvarying in life and character in regard to the next. It shows how miserable was the state of his age, that he never thought it worth while even to pretend to be religious.

It is impossible to speak sympathetically of such a man, or such a time. But he stands high among our letter-writers. D'Israeli considered him to be unrivalled, and Sir Walter Scott said that he was the best letter-writer in the English language. We do not, of course, agree in these opinions ; Southey was far nearer the truth in assigning the highest place to William Cowper. But his sketches of his particular age and circle were certainly masterly, and his style was exquisite. The jewels may be paste, but their setting is faultless. He has, therefore, undoubted right to a pedestal here.

He was born on the 5th of October, 1717. When only nine years of age, he was sent to Eton school, where he had Gray, the poet, for his school-fellow. He was a delicate child ; but he escaped much of the brutality then in vogue at our public schools, on account of his father's position as first minister ; for toadies abounded then, as they do now. Perhaps Walpole's whole career might have been different, if his masters and playmates had not truckled to him, and fostered his inbred weaknesses. Whatever the cause, however, he was never a genuine boy. Cricket and games of agility and strength had no attractions for the youthful Horace.

In 1735 he went to King's College, Cambridge. Gray, who was of Pembroke, was still one of his associates ; so was another school-fellow, a cousin, Henry Conway, the only

man for whom he appears to have had a lasting friendship. The most obsequious biographer cannot make out that Walpole distinguished himself in any way at college; although this was, of course, no proof of lack of talent.

In 1739 he left Cambridge, and, together with Gray, started for "the grand tour."

At Florence he stayed with Mr. (afterwards Sir) Horace Mann, the English minister there. To this gentleman his best letters of after years were addressed. In 1741, shortly after leaving this place, he and Gray quarrelled, and parted company.

Horace's father, Sir Robert Walpole, had, in 1737, secured his son in sinecure offices, with salaries amounting in all to 2500*l.* per annum. On his return from his tour, Sir Robert put him into Parliament for a rotten borough; and he continued to sit in the House a silent member, or, at all events, an uninfluential one, for twenty-six years.

In 1741, however, Sir Robert Walpole was tottering. The history of the House of Commons at that time was the history of battles between place-hunters and place-men; the public good being of secondary importance. Sir Robert had held place for a great many years. His opponents were numerous; opportunity favoured them; they acted; and he fell. He was made Earl of Orford, with a good income. He almost retired from public life, and became a virtuoso. In 1743 Horace catalogued and described his pictures. A very short time afterwards he died, and Catherine of Russia purchased these pictures for 40,000*l.*, and had them carried to St. Petersburg, where they are now.

In the same year, 1743, Horace Walpole wrote warmly to Horace Mann in praise of a London life. He said that, if he were a physician, he would prescribe nothing but "recipe CCCLXV drachm. Londin." Yet, in 1747, after residing for some time in Windsor, he purchased a property at

Twickenham—then far from London ; and after many years labour and great alterations, “Chopped-straw Hall,” the country residence of a London toyshop keeper, was converted into the “Strawberry Hill” of which everybody has heard; and he lived there, with few exceptions, during the remainder of his life.

That “little plaything house” was full of little wonders. Among them was a printing-press; and the proprietor amused himself by bringing out lordly editions of favourite authors, as well as books of his own. Of the latter, the most voluminous was his “Royal and Noble Authors,” a work of little literary value, but which, from the attraction of its subject, excited a good deal of attention. In 1765 appeared his “Castle of Otranto;” but, in order to give to this little tale an air of secrecy, he had it published by a more regular member of “the trade” than himself. It succeeded, and he owned the authorship. Like its successors, the “Old English Baron,” and hosts of others, this once celebrated “Gothic Story” of mystery and romance has had its day, and is little better known to the present generation than “Anne of Swansea,” or “The One-handed Monk.” Thanks to the reformation which was begun by Crabbe’s sarcasms, which was continued by Scott’s stories, and which is still progressing, modern readers of fiction are not to be satisfied with mere wonders or adventures. Writers of imaginative narratives are required to have insight into the secret springs of men’s actions and passions, to approximate as nearly to biography as their art will permit, to delineate character, as well as tell and develope interesting stories with skill. Walpole’s romance is, therefore, quite out of date now.

In 1766 he published his “Historic Doubts about Richard III.”—an attempt to overthrow the proofs of that sovereign’s guilt. In our own day a lady has endeavoured to do the same thing in a more positive way. But public

opinion is still on Shakspeare's side. We believe the man to have been hump-backed and a monster, in spite of Horace Walpole or Miss Halsted. Such Historic Doubts were the rage of the last century: nothing was safe from the doubter; the most sacred and important matters as well as the most trivial were alike submitted to what was imagined to be reason, until Archbishop Whately published his extraordinary Historic Doubts about Napoleon Buonaparte, in which, jestingly but logically, he completely routed the whole tribe, from Walpole on Richard to Hume on Miracles.

Meanwhile he accumulated curiosity upon curiosity at his Gothic castle. He occupied himself in entertaining noble and courtly, and even royal, acquaintances; in writing brilliant letters about the sayings and doings of fashionable wits and ladies: in *playing at life*, if we may so speak—a light, elegant, bitter, and heartless exquisite.

Thus nearly thirty years passed. He took occasional journeys to Paris and the country; but most of his time was spent at Strawberry Hill, which, as new generations arose, was still one of the most successful show-places near London. By this time, however, his health was much broken. He had long been a victim to gout, and he was now an old man. The title of Lord Orford came too late to afford him any gratification; and at length, in 1797, the querulous and veteran wit was summoned away from a world whence nearly all his old acquaintances had long since departed.

It seems to us, as we review it, to have been, at its best time, a poor and paltry career; but there is a moral in it, as in every life, if we will read with understanding; a moral, old as civilisation—that wealth, intelligence, and the applause of men, are all, if by themselves, incapable of giving happiness; and that he only who tries to do what is righteous and great, looking upward, and looking onward, can attain pure joy—in that “peace which passeth understanding.”

The dozen octavos of Walpole's Letters form the largest repository of brilliant frivolity and glittering nonsense to be found in the English language. And although a dreary impression is left in the long run, owing to their utter worldliness and want of soul, there is a great momentary charm in their wit, and in their jaunty, easy sketches of all contemporary persons and things. Taken almost at random, the following, to the Countess of Ossory, will give some idea of the Horatian method:—

“*Berkeley Square, Nov. 14, 1779.*”

“I must be equitable; I must do the world justice; there are really some hopes of its amendment; I have not heard one lie these four days; but then, indeed, I have heard nothing. Well, then, why do you write? Stay, Madam, my letter has not got on horseback yet; nor shall it mount till it has something to carry. It is my duty, as your gazetteer, to furnish you with news, true or false; and you would certainly dismiss me, if I did not, at least, tell you something that was impossible. The whole nation is content with hearing anything new, be it ever so bad. Tell the first man you meet that Ireland has revolted; away he runs, and tells everybody he meets,—everybody tells everybody, and the next morning they ask for more news. Well, Jamaica is taken. Oh! Jamaica is taken! Next day, What news? Why, Paul Jones is landed in Rutlandshire, and has carried off the Duchess of Devonshire, and a squadron is fitting out to prevent it; and I am to have a pension for having given the earliest intelligence; and there is to be a new farce, called ‘The Rutlandshire Invasion;’ and the King and Queen will come to town to see it, and the Prince of Wales will not, because he is not old enough to understand pantomimes.

“Well, Madam, having despatched the nation and its serious affairs, one may chat over private matters. I have seen Lord Macartney, and do affirm that he has shrunk, and has a *soupçon* of black that was not wont to reside in his complexion.

“Mr. Beauclerc has built a library in Great Russell Street, that reaches half-way to Highgate. Everybody goes to see it; it has put the Museum's nose quite out of joint.

“Now I return to politics. Sir Ralph Payne and Dr. Johnson are answering General Burgoyne, and they say the words are to be so long, that the reply must be printed in a pamphlet as large as an atlas, but in an Elzevir type, or the first sentence would fill twenty pages in octavo.

“ You may depend upon the truth of this, for Mr. Cumberland told it in confidence to one with whom he is not at all acquainted, who told it to one whom I never saw ; so you see, Madam, there is no questioning the authority.

“ I will not answer so positively for what I am going to tell you, as I had it only from the person himself. The Duke of Gloucester was at Bath, with the Margrave of Anspach. Lord Nugent came up and would talk to the Duke, and then asked if he might take the liberty of inviting His Royal Highness to dinner ? I think you will admire the quickness and propriety of the answer :—the Duke replied, ‘ My Lord, I make no acquaintance but in London,’ where you know, Madam, he only has levees.”

The next gives a glimpse of *Vanity Fair* eighty years ago :—

“ Besides the gout for six months, which makes some flaws in the bloom of elderly Arcadians, I have been so far from keeping sleep for the last ten days, that I have kept nothing but bad hours. I have been at four balls since yesterday se’nnight, though I had the prudence not to stay supper at Lord Stanley’s. That festival was very expensive, for it is the fashion now to make romances rather than balls. In the hall was a band of French horns and clarionets in faced uniforms and feathers. The dome of the staircase was beautifully illuminated with coloured glass lanterns ; in the ante-room was a bevy of vestals in white habits, making tea ; in the next, a drapery of sarcenet, that with a very funereal air crossed the chimney, and depended in vast festoons over the sconces. The third chamber’s doors were heightened with candles in gilt vases, and the ballroom was formed into an oval with benches above each other, not unlike pews, and covered with red serge, above which were arbours of flowers, red and green pilasters, more sarcenet, and Lord March’s glasses, which he had lent, as an upholsterer asked Lord Stanley 300*l.* for the loan of some. He had burst open the side of the wall to build an orchestra, with a pendent mirror to reflect the dancers, and the musicians were in scarlet robes, like the candle-snuffers who represent the Senates of Venice at Drury Lane. . . . The former quadrilles then came again upon the stage, and Harry Conway was so astonished at the agility of Mrs. Hobart’s bulk, that he said he was sure she must be hollow.”

Amidst all his levity Walpole was thoroughly unhappy, as every man must be, who has faith in nothing. He says,—

“I desire to die when I have nobody left to laugh with me. I have never yet seen or heard anything serious that was not ridiculous. Jesuits, Methodists, philosophers, politicians, the hypocrite Rousseau, the scoffer Voltaire, the Encyclopædists, the Humes, the Lyttletons, the Granvilles, the atheistic tyrant of Prussia, the mountebank of history, Mr. Pitt”—senior—“all are to me but impostors in their various ways. Fame or interest is their object; and after all their parade, I think a ploughman who sows, reads his almanack, and believes the stars but so many farthing candles created to prevent his falling into a ditch as he goes home at night, a wiser and more rational being, and, I am sure, an honester, than any of them.* . . . Rabelais brightens up to me as I see more of the world. He treated it as it deserved, laughed at it all, and, as I judge from myself, ceased to hate it, for I find hatred an unjust preference.”

Receiving the Scriptural account of human depravity, the Christian is still benevolent; rejecting that account, the free-thinker is usually a misanthropist. And with no affection for his fellows, and no hope in his future, few things can be drearier than the old age of the used-up worldling. To the foregoing extract the next may be given as an appropriate sequel :—

“I am tired of the world, its politics, its pleasures, and its pursuits; but it will cost me some struggle to be tender and careful. Can I ever stoop to the regimen of old age? I do not wish to dress up a withered person, nor drag it about to public places; but to sit in one’s room, clothed warmly, expecting visits from folks I don’t wish to see, and tended and flattered by relations impatient for one’s death! let the gout do its worst as expeditiously as it can. . . . I am not made to bear a course of nonsense and advice, but must play the fool in my own way to the last, alone with my own heart, if I cannot be with the very few I wish to see; but to depend for comfort on others, who would be no comfort to me, this surely is not a state to be preferred to death; and nobody can have truly enjoyed the advantages of youth, health, and spirits, who is content to exist without the two last, which alone bear any resemblance to the first.”

C. M. C.

* Walpole and Cowper could not be more justly contrasted than in placing side by side the above passage, and Cowper’s parallel of the pious knitter and Voltaire.

MY BROTHER'S KEEPER.

CHAPTER XIII.

With thy clear keen joyance
Languor cannot be :
Shadow of annoyance
Never came near thee.—SHELLY.

It was one of those warm foretokens of summer which are sometimes sent by the hand of April. With sympathetic laziness people strolled along through the sunshine ; the street-sprinklers passed on with their carts, and birds and radish-boys were clamorous. The leaves came out apace but stealthily, and the very air was breathless. And yet there floated in from the storehouses of fresh things, fresh influences. The silence spoke of sweet sounds in the wilderness of nature, to the wilderness of men ; and flowers came not on 'the wings of the wind,' but their own breath ; and over all there was a sky so purely blue—so free from turmoil and pollution,—that it seemed as if the last revolution of the earth had rolled New York away from its own proper atmosphere, and bestowed it beneath a new canopy. How far removed from the sights and sounds—the steps, the rattling wheels, the drums, the cries, that spread themselves through the city.

So thought Miss Clyde, as with little Hulda in her hand she went slowly home from a walk. How few, she thought, how very few there were that appreciated or even noticed that 'clear expanse',—how few that would not mourn if the word were sent to them, 'Come up hither.' The very birds were longing to try their wings in such an element ; and man chose the dust, and looked down and not

up. A little pressure of her hand brought her eyes down. Hulda was studying her face as intently as she had watched the sky.

‘Are you tired, love?’

‘O no,’ said Hulda, ‘but I didn’t know what you were thinking of. There’s a carriage at our door.’

Somewhat wondering with herself what could have made Mrs. Raynor go in and wait for her, Rosalie mounted the steps, and her wonder was not lessened to find Thornton in the parlour.

The good quakeress spoke not a word till she had kissed her first upon one cheek and then on the other, even more tenderly than usual.

‘I have made acquaintance with thy brother,’ she said then—‘I would know everybody that loves thee and whom thou dost love.’

‘That is not a very safe rule to go by neither,’ said Thornton. ‘In this case, Mrs. Raynor, Rosalie loves somebody very different from herself.’

Mrs. Raynor looked as if she knew it full well—or at least as if she thought the people who resembled Rosalie were few.

‘And thou, dear little Hulda,’ she said, sitting down and taking the child on her lap—‘wilt thou come home with me and see my flowers?’

Hulda looked doubtfully towards her sister and then up at the soft, quiet eyes that looked down upon her. She had to resort to the childish formula of hesitation,

‘I don’t know, ma’am.’

‘Yes, thou wilt come,’ said the quakeress decisively—‘thy sister will not say nay to thy going. Thou and I will have the carriage all to ourselves, and we will get home before dinner.’

‘But how shall I get back again?’ said Hulda smiling.

‘We will see—mayhap thy friend Henry Raynor will bring thee.’

‘Is that the same Mr. Raynor that came here once—no, two times?’ said Hulda.

‘Truly love I think there is but one Henry Raynor,’ said his mother.

‘O then I should like to go, very much.’

And jumping down to ask her sister’s leave, Hulda ran away up-stairs.

‘He hath taken a strange fancy to thy little pet,’ said the quakeress, looking however rather towards Thornton.

‘To Rosalie’s pet, Mrs. Raynor—I am fonder of grown-up humanity.’

‘Thou hast never known what it was to lose such a little pure spirit from thy house,’ said the quakeress with a sigh, ‘or thee would better appreciate it. But thou hast a large share, friend Thornton, and ‘when the cup runneth over,’ the drops are less precious.’

‘I have not a drop too many,’ said Thornton with an expression he was hardly conscious of. ‘You know it takes more to make some people happy than others, Mrs. Raynor.’

‘I know there is but one thing which of itself bringeth happiness,’ she said—‘perhaps without that thy remark may be just. But here cometh one whose happiness is of easy growth. And yet, Rosalie, she demurreth about leaving thee even for one day.’

There was certainly considerable doubt on Hulda’s mind except when she looked at Mrs. Raynor; but there she found something so attractive that she was allured on, and soon found herself doing anything else but fill a place in the carriage. Stowed away like a small parcel on the spacious seat, her little shoes in plain sight, with one hand stretched over Mrs. Raynor’s soft dress and there held fast, Hulda

watched through the front window the substantial back of Caleb Williams, and thought how very funny it was for a coachman to wear a grey coat. The carriage rolled smoothly on in the most regular and matter-of-fact way possible,—as if Caleb and his horses had made an arrangement that they were not to get home before a certain time, and therefore it was as well to take it easy.

Hulda remembered how Thornton's horses went now very fast and now slow—and then started off again at a most eccentric pace; but at this rate she could have slept all the way to Mrs. Raynor's with no disturbance. Arrived at the house another wonder awaited Hulda, for there was a footman all in grey too; and when she had followed Mrs. Raynor up-stairs, and Rachel came at her mistress's call habited after the same sober fashion, Hulda began to feel as if all the world were turning mouse-colour, and looked down at her crimson merino with feelings of amazement.

'Thee sees I have brought home little Hulda Clyde, Rachel,' said Mrs. Raynor. 'Will thee take off the child's bonnet and cloak, and see if perchance her feet be cold.'

'Yea, verily,' said Rachel, when she had brought her mistress another dress. 'Art thou cold, Hulda?'

'O no,' said Hulda, whose mind had got beyond the cold region and was in a great puzzle, for Rachel had not only Mrs. Raynor's stuff gown but also her cap! 'I'm not cold at all.'

'Doth thy dress keep thee warm?' said Rachel with a grave irony which Hulda did not understand.

'Yes ma'am,' she said, in a new difficulty from the similarity of neckerchiefs—'I suppose so—my frock and my coat.'

Rachel almost smiled at the grave little face—so sincere and so wide awake.

‘Now thou art all ready,’ said Mrs. Raynor approaching them, ‘and likewise I, and we will go down stairs.’

‘There waiteth a woman this long time,’ said Rachel, ‘and she will not tell her want save to thee. James Hoxton hath brought her to the kitchen.’

‘I will straightway go and see her,’ said Mrs. Raynor. ‘And for thee, little Hulda, wilt thou sit by thyself in the library until I come, and Rachel shall bring thee the cat?’

It never would have occurred to Hulda that a tortoiseshell cat could come to keep her bright dress company; and therefore when a grave knight of Malta walked in, she felt at once that he was one of the family.

‘Art thou afraid to stay here alone?’ said Rachel, when she had watched the knight’s reception.

‘Why what should I be afraid of?’ said Hulda.

‘Truly little one, thee has reason,’ said the handmaid as she departed.

Hulda had sat some time upon the rug in front of the fire, and Maltese was quite expanding beneath her caresses; when somebody came in and took a chair behind her, and she was lifted up, cat and all, upon Mr. Raynor’s lap. *He* was not in grey—Hulda saw that at a glance—but in a blue uniform with red facings, very much like her dress. She felt quite comforted. But when she got a fair view of his face—for at first it was too close to her own—she saw that he had his share of the sober colour, only worn differently. But what made him look so at her? There was something in his face that troubled her, and almost tearfully her eyes sought his. He smiled then, and drawing her head down till it rested against him, he asked how she was, and then after her sister.

‘O she’s very well,’ said Hulda stroking the cat. ‘I

suppose she's always well for she never says she's sick. Do you think she'll miss me to-day, Mr. Raynor ?'

'I do not believe she is sorry you came, dear Hulda, and I am very glad.'

Hulda thought that was very strange.

'Henry Raynor,' said his mother as she came into the room, 'go I pray thee and take off those trappings at once, my child ; I like them not—they become no man—much less thee.'

'Then you must get down, little Hulda, for a while, if I am to go and change my dress.'

It was a great pity, Hulda thought, with an uncomfortable vision of her friend habited in the prevailing colour.

But when he came down again the dress was black and not grey ; and Hulda went to her former seat with great satisfaction.

'The dinner waiteth,' said James Hoxton opening the door.

'You don't think yourself too old to be carried, Hulda ?' said her friend.

'O no,' said Hulda, 'Alie very often carries me upstairs when I'm tired or sick.'

'I should think thy weight better suited to thy brother's arms than to thy sister's,' said Mrs. Raynor, 'as having more strength.'

'O her arms are *very* strong !' said Hulda from her place of elevation. 'They *never* get tired. And Thornton's not at home you know generally when I want to be carried—but Rosalie always is. She says gentlemen can't always be at home so much as ladies. But she don't hold me quite as well as you do, Mr. Raynor.'

And with one arm passed most confidingly round his neck, they went forth together and proceeded to the dinner-table ; where Hulda was as well taken care of as possible.

Taken care of in more ways than one, though she was too young and unskilled to notice the delicate tact with which whenever her childish talk ran too close upon home affairs she was led off to another subject ; nor how carefully she was kept, as far as might be, from making disclosures which indeed she knew not were such. And if she had been older she would have wondered at herself for her perfect at-home feeling among such grave people ;—for the freedom with which she talked, her little voice making music such as it never yields when the chords have been once overstrained or the wires unstrung—most like a mountain rill in its sweet erratic course. And the older ones looked and listened—Mrs. Raynor with often a smile and sometimes with glistening eyes ; while to his face the smile came less often, and there was only the look of interest and affection which won Hulda's heart yet more. And whenever the rill went too far in any one direction, it was only necessary to hold out a painted leaf—some bright word or question or anecdote—and the rill was tempted, and went that way. On the whole Hulda thought as she was carried back into the library, it had been one of the most satisfactory dinners she ever remembered.

‘Hulda Clyde,’ said Mrs. Raynor, ‘I go up-stairs to sleep, as is my wont. What wilt thou do, my child ?’

‘O I will stay here,’ said Hulda.

‘You can content yourself for awhile with the cat and me, I am sure,’ said Mr. Raynor.

‘O yes—and without the cat,’ said Hulda contentedly.

He smiled, and his mother came up behind him, and passing her arm round his neck as if he had been a child, raised up his face and kissed it, and went away.

‘What do you think of my being made a baby of yet, Hulda ?’

‘Thornton says that’s what mamma used to do with

Rosalie,' said Hulda, whose little avenues of thought all ran down to the same stronghold of love and confidence. 'Did you ever see my mamma, Mr. Raynor?'

'Yes, dear, often; and loved her very much.'

'I don't remember her a great deal,' said Hulda—'I believe I get her confused with Rosalie.'

She sat quiet a few minutes and then started up.

'Don't *you* want to go to sleep, Mr. Raynor?'

'Don't you?'

'O no—not a bit.'

'Neither do I.'

'Well that'll be very fair, then,' said Hulda laughing. 'But I should think you'd get tired of holding me, Mr. Raynor—most people don't like to.'

'I once had such a little sister as you are, Hulda—whom I loved better than almost anything else in the world. You remind me of her very much, and that is one reason why I like to hold you and kiss you and carry you, and do anything else with you and for you.'

'I'm very glad!' said Hulda, her pleasure half checked by something in his look and tone. 'So that's one reason. What's the other?'

He smiled and told her she must be content with hearing one; and then asked her what she had been doing and learning lately.

'I don't learn a great deal,' said Hulda—'only arithmetic and geography and little, little bits of French lessons. And then I write—and I have one hymn to learn a week, and a little verse every day.'

'Tell me one of your hymns.'

'Then I will tell you the last one,' said Hulda.

'Around the throne of God in heaven,
Thousands of children stand;
Children whose sins are all forgiven,
A holy, happy band—
Singing glory, glory, glory.'

‘ What brought them to that world above—
That heaven so bright and fair—
Where all is peace and joy and love?—
How came those children there,
Singing glory, glory, glory? ’

‘ Because the Saviour shed His blood
To wash away their sin ;
Bathed in that pure and precious flood,
Behold them white and clean—
Singing glory, glory, glory. ’

‘ On earth they sought their Saviour’s grace,
On earth they loved His name ;
So now they see His blessed face,
And stand before the Lamb—
Singing glory, glory, glory. ’

‘ Don’t you think it’s pretty?’ said Hulda, when she had waited what she thought a reasonable time for Mr. Raynor to speak, and he had only drawn his arm closer about her.

‘ I think it is much more than pretty. Do you understand it all?’

‘ I believe so’—said Hulda—‘ Rosalie told me a great deal about it.’

‘ What?’

‘ Why she said that even children needed to be forgiven before they went to heaven—that was one thing in the first verse,—and that people ought to try to make this world as much like heaven as they could, and that if all was peace and joy and love there it ought to be here. And then in the third verse, that we didn’t only need to be forgiven, but made good and to love all good things, and that if God didn’t make us love Him and like to serve Him, we never could be happy in heaven even if we could get there. And she said the blood of Christ was called a flood because it was enough to save everybody in the whole world—and to make them clean, if they would only trust in it. And she said

the last verse taught us that we must love and serve Him now, while we are here, and then when we die He would 'receive us to Himself?'

'And what does that word 'white' mean in the third verse—'Behold them white and clean?'

'Don't it mean something like clean?' said Hulda.

'Something like, yes. It shows how very pure, how very holy, will all God's children be when He has taken them to heaven. As the Bible says—"they are without spot before the throne of God"—"without fault before Him"—think how very holy one must be in whom the pure eye of God sees neither spot nor fault. Such are all the children about His throne—and because thus holy they are happy.'

'Do you think there is *nobody* that is quite good?' said Hulda with a face of very grave reflection.

'The Bible says, "there is not a just man upon earth that doeth good and sinneth not."'

'I know it does,' said Hulda, who was apparently a little troubled with some reservation in her mind. 'But that only speaks of men. I don't suppose there are a great many.'

Mrs. Raynor came down from her nap in due time, and then proposed that they should go into the greenhouse. Hulda was enchanted; and ran about and admired and asked questions to the delight of both her friends.

'Would thee like some flowers to take home with thee?' said the good quakeress, drawing Hulda's head close to her. And Mr. Raynor's knife hardly waited the reply before it began its work. Hulda's little hands had as many as they could hold.

'And now thee must have one flower for thy sister—yea, Henry, thou art always right,' she said as her son began to examine the respective merits of the white camellias. 'They are not the fairer.'

'O Mr. Raynor! you are cutting the very prettiest one!' cried Hulda. 'O it was too bad to take that.'

'Is it too pretty for your sister?'

'O I don't think so, of course,' said Hulda,—'but then it was your little bush.'

Hulda wondered at the smile that passed over his face, and looked if she might see it come again, but it came not.

He tied up her flowers and put them in water for her, and walked with her about the greenhouse till the last sunbeams had left it, and the flowers grew indistinct.

'Friend Henry,' said James Hoxton appearing at this juncture, 'thy mother waiteth for thee at tea.'

'James Hoxton is a quaker,' said Mr. Raynor with a smile at Hulda's look.

'Does *that* make him speak to you so?' said Hulda. 'You're not a quaker, Mr. Raynor?'

'No. If I were a quaker, Hulda, I should call my mother 'friend Joan.'

'Should you! But that would be very disrespectful,' said Hulda.

'No — not if I were a quaker.'

'O —' said Hulda, a little and only a little enlightened. 'I'm *very* glad you're not a quaker — I don't like grey at all;' though when she got to the tea-table Hulda could not help liking everything about Mrs. Raynor — even her grey dress.

Mr. Raynor took her home in the carriage after tea. Not sitting by his side but on his lap, and wrapped up in his arms as if she were a precious little thing that he was afraid to lose sight of. But he would not come in, though Hulda begged and entreated him. He carried her and her flowers up the steps and into the hall where Tom stood holding the door; and then ran down again and in a moment was in the carriage and off.

! (To be continued.)

TIMES OF REFRESHING.

THE world's day of refreshing has not yet come. It is promised ; and it shall, in due time, arrive ; but meanwhile creation groans ; and though the many fields of earth have been looking up wistfully for the shower, they have not yet received it. They may have to become yet more parched and weary, ere they are refreshed. The world may have yet to pass through Elijah's years of drought ere it is gladdened with Elijah's "abundance of rain."

"So shall the world go on :

To good malignant, to bad men benign ;
Under her own weight groaning ; till the day
Appears of RESPIRATION to the just
And vengeance to the wicked, at return
Of Him so lately promised to thy aid,
The woman's seed, obscurely then foretold,
Now amplier known, thy Saviour and thy Lord ;
Last in the clouds, from heaven to be revealed
In glory of the Father, to dissolve
Satan with his perverted world ; then raise
From the conflagrant mass, purged and refined
New heavens, new earth, ages of endless date
Founded in righteousness, and peace, and love ;
To bring forth fruits, joy, and eternal bliss."*

The "times of refreshing" are still in reserve. The world remains parched and unwatered. The desert has not yet blossomed as the rose.

Still there have been showers, and many a thirsty spot has freshened and rejoiced as the drops descended. There have been earnestings of what is coming ; and, from the age of

* "Paradise Lost," b. xii. l. 537-551. In the above passage Milton has, with his usual felicitous exactness, caught up the original word ἀναψυχῆς — respiration — refreshing — breathing-time.

the Apostles downward, these showers have succeeded each other, time after time, so that there has been no generation in which some drops at least have not fallen.

The first great shower was Pentecost. On the anniversary of the giving of the law from Sinai, when "the heavens dropped (or "shook out rain," see the margin) at the presence of God," and the plentiful rain was sent upon the weary camp (Ps. lxxviii. 8, 9); on that day the Holy Spirit came down in power, and three thousand souls were gathered in. Such was the result of the Spirit's first testimony to the accepted propitiation of the Incarnate Son of God. Such was the response given from the Father's throne to the "It is finished" of the victim upon the cross. Christ was glorified; and, therefore, this earnest of what is yet to be seen over earth, in the day of His final glory, was sent down. Great, indeed, must have been the refreshing in Jerusalem, when that marvellous shower fell upon a soil that seemed cursed with barrenness and thirst. Three thousand in one city and in one day giving up their unbelief and owning as God the very being whom, a few weeks before, they had crucified as worse than the worst felon in their common gaol!

Once and again did the shower come down upon that same city and with like wonderful results. Many were the thousands in Jerusalem that listened to the life-giving news, and gathered round the name of Jesus of Nazareth. The cloud from whose skirts there came, ever and anon, those mighty showers, did not soon evaporate or depart, but rested long above the city, exhibiting many times its heavenly treasures and shedding down during the space of forty years, the reviving rain with which it was charged.

But all Judea was to know the power of that name, which had brought life to so many thousands in Jerusalem. Right above Samaria did the cloud plant itself, and that region was

watered from on high, so that there was great joy throughout it (Acts, viii. 8). In other parts it was the same; till over the face of that barren land many a green spot was seen, many a field of corn waved to the breeze, and many a palm-tree rose up in stately beauty. The word of the Lord "grew and multiplied." The name of Jesus of Nazareth was felt to be a name of power,—truly the name of Him who is the resurrection and the life.

We pass north into Asia Minor, and we find that the cloud has been there. At first, as it rested over Palestine, it seemed no bigger than a man's hand; now it has spread itself out over the lands of the Gentiles, till city after city is refreshed by it,—Ephesus, Pergamos, Laodicea, Philadelphia, Smyrna, Sardis, Troas, Derbe, Miletus, Antioch. Strange must have been the scenes in these Gentile cities,—far stranger than those in Galilee, or Judea, or Samaria. For what idea could these idolaters have of the One God, or of His Christ, or of the Holy Ghost? Yet the name of the crucified Jesus, simply spoken by solitary men, with no power, nor numbers, nor philosophy to back them, wrought like a miraculous spell; so that men, by some mysterious impulse, clung to it, and for it forsook their idols, and burned their books of magic, and left the temples of Diana and Jupiter, to meet together in some small room where, perhaps, their household gods had stood, or where but yesterday, it might be, they had chaunted, over their cups, some drunken song to Venus or to Bacchus.

We cross the Hellespont and pass into Macedonia, and from Macedonia southwards into Greece. The cloud has been there before us. And what a change it has made! Athens, indeed, has got but little. Hardened into iron by its vaunted wisdom, the soil has flung off the drops as they fell. But few listen to the announcement of resurrection and judgment,—Dionysius the Areopagite, a woman named

Damaris, and one or two besides. There can hardly be a Church at Athens, save the gathered "two or three." At Corinth, however, it is not so; and the Gospel triumphs more widely over Corinthian sensuality than over Attic philosophy. In Philippi, too, and Thessalonica, and the region of Macedonia, we light upon spot after spot of brightest green. The shower has done its work. The hills of Greece look greener, and the vale of Tempe seems fairer, than when Ovid sung of it as the haunt of "gods."

We pass westward, and find ourselves in Italy. But the cloud has been before us. The shower has come down upon its valleys, and the roses of the "double-bearing Pæstum"* have been far outshone by the ever-blooming Rose of Sharon. Rome, the metropolis of the world, has listened to the good news of life through Him whom Pilate crucified; and multitudes have left their vanities, and found the living God. What wonders are now spoken of in Rome! Never, in all the long, strange history of that city, has the Capitol, or the Forum, or the Campus Martius, seen the like. The tidings have gone abroad among the citizens, "Jesus the Jew, whom our procurator condemned, and to whose death the emperor assented, has come alive again, and He is the Son of God; nay, and whoever will own Him as such shall receive an everlasting kingdom, and a paradise more blessed than the Elysian fields." Many scoff, many doubt, many give no heed; but some listen. They listen, and what a change seems to pass upon them as they drink in the wondrous words, "Jesus Christ died for our sins,—He died and rose again." They are lifted up into a new region; old things pass away, all things have become new. As they pass through the market-place, or out of the city along the Appian Way, they speak to those they meet with of the joy which fills them. As they

* "Biferique rosaria Pæsti."—VIRGIL, *Georg.*

wander down the banks of the Tiber they speak to themselves of Him whom they have found, and ask, "Is all this really true, and is there no condemnation to them that are in Christ Jesus?"

We cross the Alps, and traverse Gaul. The shower has been there. We cross the Pyrenees, and glance over Spain. The shower has been there. We take ship and visit the islands of the Mediterranean. The shower has been there. And as we lie at anchor at Malta or at Crete, a merchant-vessel bound for one of the Lycian harbours anchors beside us. She has just returned from a far northern voyage, and her freight is tin from the mines of the Cassiterides. There are some Asian brethren among the sailors, and the first news they bring us is that Christ has been preached to these far-off islanders. Britain has received the shower!

North, south, east, west,—all regions have something to tell us of the heavenly rain. Over the whole vast desert of heathenism, whose sands are twice dry, and whose best soil seems incapable of yielding aught save the rank weeds of foul idolatry,—over this whole desert flowers are springing up in clusters: the very crevices of the northern rocks have now their roses. Heathenism looks on amazed. From every quarter the mysterious fragrance seems to come. Borne upon every breeze it floats across seas and mountains, resting over every city, and finding its way into every temple, till the incense of "the gods" is lost amid the sweeter odours flowing out of no human censer and no earthly garden.

Whence came the fragrance that made men wonder? Heathenism asked the question, but was slow to receive the answer.

Such was the way in which the parched world was refreshed. The showers were partial, but still they moved

over a vast stretch of territory,—perhaps much vaster than is commonly thought. The showers were brief, but while they lasted they wrought wonders; and the verdure which they called up from the sands of these Gentile deserts was of the greenest and healthiest kind.

The book of the Acts of the Apostles is a far more wonderful record than we generally conceive it to be. Were it the annals of the creation of the stars it would be much less wonderful than it is; for what is the creation or lighting up of the brightest orb in the heavens to the new creation of the poorest outcast wandering through some remote village of Parthia, or living by theft in some lane of Corinth? The great folios of Moreri, or Bayle, or Kippis, which record all that is worth knowing of the great and wise of earth, contain unspeakably less of what will last than the twenty-eight chapters of Luke's marvellous story of the Church's early days. It is the shortest, simplest, plainest history of a great era that was ever written; yet it is by far the richest, most fruitful, and most suggestive,—inexhaustible in its teachings, and speaking as directly to the age that is now, as to the age that first read its pages.

It needs, no doubt, many readings. But from every new search we return laden with fresh gems. The mere critic soon exhausts it. The historian of the world easily gleans from it all the information he wants. He sees at one or two readings all that *he can see*. It needs faith's microscope to get farther in. And when thus *magnified*—not coloured nor distorted, but simply *magnified*—by faith's microscopic power, what treasures, what wonders disclose themselves!

Take up a few of those verses in which the results of a preached gospel are given us. At first they seem bare, as does the bud of spring. But examine them, open them out, magnify their parts,—how full they become, how endless their riches! The first of these that we light upon is the

following:—"The same day there were added unto them about three thousand souls," (ii. 41). Is this less wonderful, less sublime than the magnificence of the oft-praised verse, "And He made the stars also?" Does the former not suggest as much as the latter—both at the same time being so divinely brief and unadorned? Or we light upon this verse, "The Lord added to the church daily such as should be saved;" or, "The hand of the Lord was with them, and a great number believed and turned unto the Lord." Does not this call to mind the well-known verse, which even Gentile criticism has numbered with the sublime, "God said, Let there be light, and there was light?" The miracles of the old creation, though greater to the eye of science, are small when compared with the miracles of the new creation. The Pentecost of the first creation, when "The Spirit of God moved upon the face of the waters," was the ushering in of miracles which made the morning-stars sing together, and the sons of God shout for joy. But the Pentecost of the second creation, when the Holy Spirit came down in such overwhelming power, was the introduction to days and years of miracle such as caused joy in heaven, in the presence of the angels, such as had never been known there before.

In reading the records of these early days of refreshing, one feels how directly that refreshing came from God Himself. "The hand of the Lord was with them," is the only explanation given of the mighty success of these primitive evangelists. The work was of God, not of man. Hence there was a vitality, a reality, and a completeness about it, which contrasts strongly with what has been done in other ages. Man soon began to play his part,—to imitate the divine workmanship. And what did he produce? A stiff copy,—a picture, a statue; *but not a Christian*. He pro-

duced what has been called a "religious man," but not what God calls a "saint,"—one who is "made partaker of the divine nature." His best is but a skilful daguerreotype ; complexion, motion, life, spirit, are wanting.

Once and again has man forgotten this. He must try his hand at doing the work of God ! He thinks he can make men Christians as he can make them astronomers or geologists. By overstepping his own limits and intruding into God's circle, he has done grievous and lasting harm. He has, indeed, multiplied names and swelled the roll of Christianity till it includes nations and kingdoms without number. But he has not made these names to LIVE. Yet he has too often succeeded in deluding men into the belief that they were alive when they were dead. Man's clumsy attempts at imitating the work of God have been the source of most of the corruptions by which Christianity has been disfigured, and the name of Christ dishonoured. How wide the difference between man's work and God's work ; between a Christian of man's making and a Christian of God's making ! Age after age has the Church lost sight of this. She has claimed to herself the power and prerogative of making Christians ; and by means of sacramental grace, officially administered or withheld, she has asserted her right of making or refusing to make Christians, at her pleasure ; thus taking out of the Holy Spirit's hands a work which is so exclusively and inalienably his own. Man-made Christians, Church-made Christians, baptism-made Christians, may do for an *official* religion, in which the sinner does not need to transact *personally* with God, nor to taste an ascertained forgiveness, nor to enjoy the flow of un-intercepted love ; but in what aspect or feature do such Christians bear the very farthest-off resemblance to the saints of primitive days, of whom it may be truly said that what they

had was just what these others have not, and what they had not was just what these others glory in possessing, nay, count vital in any claim to the name of Christian.

The Church's claim to make Christians has but multiplied the forms and shapes of death, while it has ripened apostasy and prepared a soil for infidelity. Pentecost was set aside, or only referred to as the installation of the Church in her official dignities and powers. Christ was dishonoured. The Spirit was quenched. The Church took possession of the keys of heaven and hell. She shook them in the face of the Most High.

God's way of working in these early times of refreshing was very simple. The gospel of His grace was the instrument. He sent abroad His messengers to tell the story of Him who died and rose again. The various scenes recorded in the Acts are just the results of the simple telling of this story, by men who had nothing to add in the way of embellishment or argument, save that all which they had spoken was most thoroughly TRUE. They asked men to believe it because God had spoken it; and because they could show them how altogether *true* it was, by means of the plain facts of which they were eye-witnesses. Wrapped up in these facts lay the whole gospel; and that these facts were true they affirmed constantly, as men who knew them, and who were ready to give their lives in addition to their testimony.

Men, through the power of the Spirit, listened and believed. In believing they were filled with joy. The love which these facts embodied came in and occupied their souls. How could they but be glad?

H. B.

A SUNDAY IN WURTEMBERG.

WURTEMBERG has produced its men eminent in the annals of literature and philosophy. With a Kepler to represent science; a Dannecker to illustrate the arts; a Schelling and a Hegel amongst philosophers; a Schiller and Wieland, chiefs in German literature and unitedly the head of whatever is original or most characteristic in German poetry; and with an Uhland and a Knapp, still to perpetuate in sweet strains the utterances of the German muse, the genius of its sons has raised it to no mean position in the world of mind. But to the Christian eye a still brighter lustre is presented by its heavenly ornaments. Of those "whose names are written in the Book of Life," known and unknown to earthly fame, it has possessed a numerous seed. It furnished a retreat in days of persecution to some bands of the Waldenses. Participating in the general movement at the period of the Reformation, the principles of Protestantism struck a deep root in that soil; and at the present time it is the only country in Southern Germany where the great majority of the inhabitants belong to the Evangelical Church. The entire population of the country is less than that of our one city, London: yet it has furnished many writers of eminence and real worth in German theology; it has provided the Church at home and abroad with many of its best preachers, and at the present day contributes not only largely in pecuniary means to the cause of Foreign Missions, but furnishes also a still more valuable contingent of *men*; so that the Swiss, and even our own Missionary Societies, are indebted in large measure to Würtemberg for their active, and, in many instances,—the late lamented Weitbrecht, for example,—their most devoted labourers.

If piety be thus widely diffused in its influence in Würtemberg, it is no less cheerful and winning in its character. It wears a warm and kindly aspect. There is much of the feeling of Christian brotherhood amongst all classes: and the stranger who can enter into this Gospel fellowship, be he of what nation he may, has already the freedom of every Christian society in the land, and is in possession of a passport which will obtain him admittance to the innermost circle of Christian life throughout the country.

It was partly with a view to know this better for ourselves, and still more in consequence of it, that we were led, in the autumn of 1854, to spend a week in Würtemberg. We had been taking part in the great meeting of the *Kirchentag*, in other words, the Diet or free Convention of the German Churches at Frankfort, and gladly accepted an invitation from Pfarrer B. to visit him in his home at Stuttgart.

The day had scarcely begun to break over Stuttgart, and we were still buried beneath the immense down pillows, which serve at once for sheet and blanket and coverlet to a German bed, when we saw the figure of our kind host advancing towards us in his dressing-gown, candle in hand, to announce that it was five o'clock, and that, with a long day before us, we must be stirring betimes. His summons was seconded by the cry of the watchman beneath our window:—

“ Steht auf im Namen Jesu Christ !
Der helle Tag vorhanden ist.
Der Tag vertreibt die finstre Nacht :
Ihr lieben Christen, seyd munter und wacht,
Und lobet Gott, den Herrn ! ”

The watchman was premature in saying that the shades of night were already giving place to the brightness of day, for it was yet almost as dark as midnight. But his voice was not unwelcome to us, as we were already eager in an-

ticipation of the pleasures of the day, and, though appropriate at all times, there seemed a peculiar fitness on the morning of the Sabbath in his summons to all in the name of Christ to be up and join in the praise of the Lord.

We took a slight breakfast with the pastor and his wife at six o'clock, uniting first in family worship, and before long were driving down the broad Königs-strasse, and, being joined by the excellent Dr. Barth of Calw, whose "Bible Narratives" have made his name so well known in many lands, were soon mounting the high hills, and pursuing the beautiful southern road in the direction of Tübingen. The Pfarrer B. and the Frau Pfarrerinn, Dr. Barth and ourselves, filled the four corners of the carriage, and a happy ride we had together; first, winding up the hill-side, till Stuttgart lay at our feet, and, with the red streaks of the early sunlight bursting through the grey mist of the autumn morning, looked most beauteous, nestling in its bed of fruit and completely circled round with an amphitheatre of hills whose vine-clad sides seemed ready to pour their luxuriance down upon the city, and to justify the proverb,—

" Si l'on ne cueillait à Stuttgart le raisin,
La ville irait se noyer dans le vin ;"

anon, enjoying the clear morning air as we pursued the road on the higher ground, having ever some new beauty of landscape or some fresh feature of country life to admire; and throughout the way, participating in the cheerful Christian intercourse of the simple-minded but amiable and warm-hearted Barth, and of our other estimable companions.

By half-past eight, we were at the door of the worthy pastor of Unter Sielmingen, the village where we were to be present at the morning service, which Dr. Barth had engaged to conduct. We entered the Pfarrer S.'s house, and from its excellent host and hostess had the warmest reception. The sitting-room was simply furnished after the manner of

a German village clergyman, whose income, it must be remembered, does not approach that of the artisan in our own country, but who, nevertheless, finds himself able to provide for all the simple requirements of his house; to fill his library with a good store of learning and a critical apparatus better than is possessed by one in fifty of our own clergy; and to give, too, an air of taste and refinement to his dwelling by a few well-chosen engravings and other simple decorations, and by a creeper or two hanging from the elegant flower-basket. Other friends arrived; and to each, on entry, by the good care of the pastor's wife, were handed a cup of chocolate and a biscuit, which afforded a grateful refreshment before the morning service.

At nine we stepped across the road, for the village church was opposite the humble manse. It was a strange but interesting scene. The road, before so quiet, was now filled with country folk from far and near, all in the peculiar costume of the Suabian peasantry, who were flocking to the house of God, and, as they passed, showed their reverence and love for their venerable old pastor, who distributed his words of kindness and blessing to the different friends who had the fortune to meet him as he walked towards the porch. Within, the sight was very pleasing. The church was full; its lower seats, according to the custom of the Lutheran service, being occupied by the female, and the galleries by the male portion of the congregation, besides which were seats appropriated to the children of the Sunday-schools. With the exception of the occupants of the minister's pew, every soul in the place belonged to the peasantry. Every woman wore the same dress, marked by the same sombre shade, and with the same brown streamers descending from the simple head-dress of plaited ribbon. The men were no less uniform in their costume; with their three-cornered hats,

and with the high-collared, long-tailed, broad-buttoned coat of home-spun blue.

The worthy doctor appeared in the pulpit, and the service commenced, after the salutation and singing, with a short liturgy. There was no reading of Scripture beyond that contained in the Gospel and Epistle of the day, and the beautiful words, "Behold, what manner of love the Father hath bestowed upon us, that we should be called the sons of God," which commenced the epistle, gave the preacher a text for a discourse characterised by remarkable simplicity and impressiveness, and which was listened to with the most devout and earnest attention. Before the sermon the preacher knelt in the pulpit for silent prayer; and, at the reading of the text as well as the portions of Scripture contained in the service, the congregation all stood, but few comparatively followed the passage in Bibles of their own.

One of the customs observed in the Church service is sufficiently singular to claim notice. At the reading of the Lord's Prayer, which occurs once in the Liturgy, the bell in the church-tower is rung, beginning as the minister says the words "Unser Vater," and ending with his and the congregation's "Amen." This is a universal custom in Würtemberg, and is designed that the people in the houses, who are prevented from attending the public service, may be informed as to the time at which that prayer is being offered, and be able in private to join their voices with those of their brethren in the church, that so a united prayer may ascend as with one voice from church and house, in the words of their Saviour's own teaching, to their Father which is in heaven. The same ringing of the church-bells may be heard in Stuttgart, and in every other city, town, and village, in this part of Germany, every morning throughout the year, to call the people, not to

public, but to private prayer, and every evening at sunset for the same object. And so much is this not a mere form, but a reality, that it is no rare thing, if not for the townsman, at least for the country labourer, when he hears the morning or evening summons, to throw down his implement of husbandry, and, kneeling in the open field, to offer up his prayer to his God and Saviour. The church-bell is used for a like purpose on another occasion, which we will mention,—that of baptism. This rite is generally performed at a period when the mother of the baptised is unable to go to the service. The bell is, therefore, sounded at the precise moment when the child receives the sprinkled water, that the mother, within her own home, may be able better to realise the time of the ordinance, and thus unite her prayers with those within the house of God in the dedication of her offspring.

Amidst the warm greetings of the villagers, we again passed out of the churchyard, and across the road to the Pfarrer S.'s house, where we found the dinner prepared for us, of which we partook at the good German hour of eleven. The dear old pastor sat at the head of the table; the "gude-wives" present occupied themselves in showing what true German hospitality is; whilst for ourselves—though, we must confess, we enjoyed it exceedingly—our position of honour next our host compelled us, through the courses of thin soup, sliced potatoes, well-boiled flesh, sourcrout, and other necessaries of German country fare, for a whole hour to listen to the most thorough Suabian, and to hold a conversation on matters weighty and interesting, with the peculiar circumstance of our own share being understood, whilst the replies were in great part incomprehensible. This was from one who, it must be remarked, is perfectly able in the pulpit to speak pure German, and who—as is the case with every clergyman before he can receive ordi-

nation—can converse in Latin, and write composition in French, Latin, Greek, and Hebrew: but who, when sitting at the head of his table, or even talking with a poor Englishman, would have found it an impossibility to have relinquished the loved *patois*, which, in like manner, for the sake of its homeliness and familiarity, was generally adopted in the social circle by the others of our company. We need not travel as far as Germany, however, to find the same experience in the home-life of those to whom a provincial dialect is part of their birthright, and most intimately associated with all which they hold most dear.

We left Unter Sielmingen at noon; but without bidding farewell to the inmates of the hospitable house where we had spent the morning, for they were, like ourselves, to be present at a great Jahres-Fest at the village of Plienigen, which was to take place in the afternoon. The Pfarrer S. and the ladies took the carriage; the other clergymen and ourselves walked. And, did space permit, we could say something of that walk, in remembrance of the beauty of the day and of the landscape, and, still more, in remembrance of the happy conversation in which we joined. At one we were seated in the parlour of the Pfarrer Sch., and enjoying the intercourse of those assembled in his house. The pastor himself was just recovering from the last of a series of successive illnesses of a severe character, which had kept him from his ministerial duties through the greater part of a twelvemonth, and one of which had for a time almost deprived him of sight. The trial had been a most heavy one, but none of all the company seemed so cheerful or happy as himself. His sons were present,—two fine young men, the one of whom had been for some time engaged as a missionary in a home station; the other had just completed his course at Basle, and was spending his last Sabbath in his Württemberg home, before leaving friends and fatherland

for the mission in Western Africa. The wife and daughter busied themselves, after the manner of the country, in entertaining their guests, and in setting before them the usual repast of coffee and biscuits. The little room was at last full to overflowing, as most of the clergy from the neighbouring villages came to take part in, or to be present at, the service of the afternoon.

At two our party went in a body to the village church. The place was large, capable of holding at least a thousand persons; but on approaching it, we already saw that it was more than filled. Many who had walked, probably miles, were unable to get within the doors; and when, after our entry, the congregation began the service with one of Luther's hymns—simple peasants though they were—their voices rang through the place in beautiful harmony, and with the power and emphasis which come alone from a warm and deeply-moved heart. The occasion which brought so many warm hearts together, was the anniversary service of an institution at Plieningen for destitute children, called the *Wilhelms-Pflege*. The children were present, to the number of sixty-eight, and were to be examined as to their religious teaching by our friend the pastor of Unter Sielmingen, as well as to give proof of their voices by singing alternately with the congregation. There were addresses given by different clergymen present suited to the occasion; and a report presented of the progress of the institution during the past year. The addresses were to us peculiarly pleasing, as showing the earnestness and impressive fervour with which the Gospel is preached in some, at least, of the churches in this region. There was much simple exhibition of divine truth, and much stirring appeal to the hearts and consciences of all, in what was heard that Sunday afternoon in the village church at Plieningen.

The catechising of the children was no less interesting.

The questions were put at the pleasure of the examiner, and embraced, with that systematic order and comprehensiveness so congenial to the German mind, a general survey of the whole compass of Christian doctrine. The examination lasted probably forty minutes, and, viewing the intelligence and correctness displayed in the answers, reflected the highest credit on the religious training given to these neglected children. Our own weakness in the language induced us to place ourselves at the side of the pastor during the examination, where the advantage of our position, and our intense interest in the proceedings, enabled us to hear and understand the whole. The old enemy—the provincial dialect—was the only circumstance that prevented us from taking a part in the examination ourselves,—a liberty which we are quite sure would have been accorded to us; but the difficulty of understanding, and the danger of being misunderstood, were obstacles with which we thought it unwise to risk the encounter.

At five o'clock, when the service had concluded, we were conducted to the institution itself. The children were already seated before their evening meal, and, judging by what we saw of the good order and arrangement of their apartments and of the establishment generally, were evidently well cared for and under very efficient superintendence and training. Besides receiving a good intellectual and religious education, they are taught various trades, manual labour of all sorts, and the cultivation of the ground. They live, in fact, as much as possible by the fruit of their own labour: being their own shoemakers, their own tailors, and especially their own farmers. Their living is frugal, yet good and sufficient; and they are kept hard at work, so as to be fitted for the duties of after-life. The remaining expenditure, probably about one-half of the whole, is met by the voluntary contribution of Christian people—them-

selves, for the most part, in what we should call poverty, yet able to spare of their penury something towards these labours of love.

We should not have said so much of this institution at Plieningen, were it not that such asylums are numerous in Würtemberg, and form an important feature in the charitable provisions of that kingdom. The Plieningen institution has been in existence thirteen years; others go back to a much earlier date. One at Stammheim, near Calw, the matron of which we met at Stuttgart, has been established more than twenty-seven years, and has been remarkably blessed, not only as a means of rescuing children from destitution and crime, but also in guiding them in the paths of righteousness. In institutions of this kind in Würtemberg there is a home and education provided for, we believe, as many as 1400 children, and not less than 5000 have passed through these establishments during the course of their existence.

Our return to the Pfarrer Sch.'s house, the pleasant intercourse which followed, our homeward drive to Stuttgart, and the other engagements of the day—although deeply interesting to ourselves—we shall, for the sake of brevity, pass over, with the simple statement that they were in pleasing harmony with the experience of the morning, and completed the picture, so grateful to our own minds, of the warm piety, the simplicity, and godly sincerity, which characterise religious life amongst the Würtemberg peasantry, and of the happy blending of cheerfulness with religion, contentment with godliness, which is exhibited, notwithstanding its many privations, in the social and domestic life, alike of pastor and of flock.

T. H. G.

BLUCHER'S "FORWARDS!"

A BALLAD FOR THE TIMES.

BRAVO! brave old Teuton heart,
Noble "Marshal Forwards!"
Bravo! every better part,—
Nature, Providence, and Art,—
Agrees in going forwards;
If we gain, to gain the more
Pressing on to things before,
Ever marching forwards;
If we lose,—by swift attack
Soon to win those losses back
By the rule of—Forwards!

Forwards! it's the way of life
Always urging forwards,—
Be it peace, or be it strife,
Stagnant-ripe, or tempest-ripe,
All is moving forwards.
Generations live and die,—
Stars are journeying on the sky
By the law of Forwards.
Space and Time, and you, and I,
And all—but God's Eternity—
Tend for ever forwards!

So, good youth, go on and win!
Conquest lives in Forwards.
Go, if once you well begin,
Steering clear of self and sin,
Forwards, ever forwards!

Never could the foe withstand
Honest Blucher's one command,
 Forwards, soldiers ! forwards :
Never shall the foe be met
Bold enough to front thee yet,
 If thy face is forwards !

MARTIN F. TUPPER.

Albury.

STANZAS.

BY MRS. ALARIC WATTS.

How readily the coward heart,
 As though in love with pain,
Turns to its burthen once laid down
 To take it up again.

The mind, so wayward is its mood,
 Will argue from the past,
And fear to taste the present good,
 Because it may not last.

Some speck on the horizon's band
 Its brightness may deform,
We say, "Behold the little hand,
 Forerunner of the storm."

But mariners, than we less dull,
 Long tossed on stormy seas,
Are grateful for the moment's lull
 That gives their vessel ease.

Strength with to-morrow's cares will come,
 To bear them as we may ;
The manna that our God hath sent
 Is given for use *to-day* !

ROBINS AND THEIR SONGS.

ROBIN to the bare bough clinging,
What can thy blithe music mean?
Like a hidden fount, thy singing
Seems to clothe the trees with green.

What warm nest for thee hath Nature,
Where thy soft red breast to lay?
Sing'st thou, little homeless creature,
For the crumbs we strewed to-day?

Other birds have fled this dun light,
Soaring on to regions fair,
Singing in the richest sunlight,
Singing in the starlit air:

Hiding 'mid the broad-leaved shadows
Of the Southern woods at noon,
Filling all the flower-starred meadows
With the melodies of June.

Knowest thou the woods have voices —
Poet-voices full and clear;—
Strains at which the heart rejoices,
Feeling the Unspoken near;

Pouring music like a river,
Many-toned and deep and strong,—
Tones 'midst which, like childhood's, quiver
Thy few notes of simple song?

Then the "crimson-tippèd" thing,
Like a daisy among birds,
With a quiet glee did sing
Strains condensèd thus in words :

" Well I know the joyous mazes
" Of the songs so full and fine ;—
" Very faint would be God's praises,
" Sounded by no voice but mine !

" Yet the little child's sweet laughter
" Wakes it no responsive smile,
" Though the Poet singeth after,
" And the Angels all the while ?

" What I sing I cannot measure,
" Why I sing I cannot say,
" But I know a well of pleasure
" Springeth in my heart all day."

So I learned that crumbs are able
Lowly hearts to fill with song,—
Crumbs from off that Festal Table
Lowly hearts will join ere long.

He Who wintry hours hath given,
With the snows gives snowdrops birth ;
And while Angels sing in heaven,
God hears robins sing on earth.

Only keep thee on the wing,
Music dieth in the dust,
Nothing that but creeps can sing,
Soaring, we can sing and trust.

E. C.

OURSELVES.

THE SPINAL MARROW AND NERVES.

THE upper part of the head is well arched and imperforate; it guards the tender substance of the brain and secures its integrity. The under-surface, or base, of the cranium, less exposed to injury, is perforated by many openings of different sizes. Through some of these the vessels pass which carry the blood to and from the brain: by others, those nerves which arise from the cerebral substance leave for their destinations among the organs of sense; the largest, called the Foramen Magnum, is immediately over the summit of the spinal column. The masonry of this column is very elaborate. It consists of twenty-four pieces, or vertebræ, built up on a strong hollow pedestal. Each piece consists of a solid body and several projections or processes. The processes fit so nicely, and overlapping check each other so effectually, that no violence, short of fracture, can separate one bone from another. The bodies of the bones are united, and yet kept separate, by a thick layer of cartilaginous cement: this, being elastic, fills up any fissure that would be produced, when we bend, or stoop, or incline to either side, if the pillar consisted only of solid materials: it diffuses too, and so mitigates, and renders innoxious, any shock received in falling, or jumping, or running, when the column is erect.* Each piece is bored through the middle, and the line of perforation is so true, that, when the bones are put together, a continuous even channel is formed, extending the whole length of the spine. On the upper and under edge of each of the vertebræ are two notches; fitting accurately with

* The late Mr. Abernethy used to say, "the head rides as if it was on a spring cushion."

corresponding notches in the bones immediately above and below, they form, at every joint, small apertures through which the nerves securely issue from the spinal marrow.

The interior of the shaft is lined throughout by the *dura mater*, that strong membrane, already described, which invests the inner surface of the skull. The whole is tied together by a series of ligaments, and formed into a firm yet flexible column ; down this column, the *Spinal Marrow*, the "*silver cord*" of life, is prolonged into the pedestal.

The *Spinal Marrow* is a continuation of the medulla oblongata.* It consists of a double cylinder of the cerebral substance, invested with the membranes of the brain. The relation of the parts, however, is changed ; for the medullary matter is now exterior to the cortical. Between the tender coverings a considerable quantity of limpid fluid is always present ; it seems to help in defending the delicate materials from pressure or otherwise, besides lubricating and keeping them moist.

Proportionately to the weight of his body, man has, as might be expected, a much larger spinal marrow than any other animal.

The *Nerves* are tender, delicate, white cords (not hollow tubes), consisting of filaments of the cerebral substance, enveloped in membranous sheaths. Under the microscope some of the filaments are found to be fibrous ; others are cellular ; a large segment is studded with corpuscles, forming what are called *Ganglia*, of different sizes.

This difference in structure, and the difference in their functions, enable physiologists to arrange the nerves into three sets :—

1. Nerves of Sensation ;
2. Nerves of Motion ;
3. Sympathetic, or Ganglionic Nerves.

* See the sketch in "*Excelsior*," No. XII.

The nerves of sensation have been subdivided into *Sensuous*, those of special sense, viz. *seeing, hearing, smelling, tasting*; and *Sensitive* or *tactile*, which endow almost the whole person with *feeling*.

Forty pairs of nerves issue from the brain and spinal marrow. Nine are called *Cerebral*, thirty-one *Spinal*.

Tracing the *Cerebral* in order, as they arise from the under-surface of the brain, the—

1st Pair is the *Olfactory*. Before leaving the interior of the skull they join, form a bulb, and again divide into many minute filaments: these pass through a perforated plate above the upper part of the nostrils; become diffused over the membrane which lines the interior of the nose, and endow it with the *Sense of Smell*.

2d Pair. *The Optic*. These are the true *Nerves of Vision*. Soon after emerging from the substance of the brain they unite very intimately, but almost immediately separate; each nerve then passes through an opening at the back of the orbit, pierces the eyeball, and becoming expanded in it forms a delicate membrane called the *Retina*, which renders the eye sensitive of the impressions of light.

3d Pair. *Motores Oculorum*. They chiefly supply the muscles which move the eyes. Each nerve gives off a branch, which penetrates the globe of the eye, and assists in inducing the movements on which the enlargement and contraction of the pupil depend.

4th Pair. *Pathetici or Trochleares*. These are the smallest of the cerebral nerves. They are devoted almost entirely to the muscles which move the eyes *obliquely*.

5th Pair. *Trigemini or Trifacial*. These are the largest of the cerebral nerves. Each nerve has three branches, and each branch many subdivisions. The *first branch* ramifies over the forehead the upper eyelid and nostril: it detaches filaments to the interior of the orbit and

eyeball. The *second branch* spreads over the upper jaw, the palate, the fauces, and parts adjoining. The *third branch* supplies the muscles of the lower jaw, and the adjacent glands. These are chiefly nerves of sensation, though not quite exclusively so; they derive feeling to the organs of special sense.

6th Pair. *Abducentes*. They go to the muscles which move the eyes outwards.

7th Pair. *Auditores*. Each nerve is composed of two parts,—a *portio dura* and a *portio mollis*; a hard and a soft part. The *portio dura* is a nerve of motion; it supplies the muscles of the head and face, the outer ear and the muscles around it; and detaches filaments to the muscles of the inner ear: it has been termed *the Nerve of Expression*.

The *portio mollis* is the tenderest of all the *nerves*: it is the true *Nerve of Hearing*. Within the inner ear it divides, subdivides, and is then diffused over the delicate membrane which lines the auditory cavities, making it sensuous of the impulses of sound.

8th Pair. *Par Vagum*. *Wandering Pair*. These nerves are of vital importance in the animal economy. In numberless ramifications they are distributed to the back part of the throat or windpipe; they give off fibres to the tongue; in common with the Great Sympathetic, they form *plexuses*,* from which arise the nerves that supply the lungs and heart; ultimately they terminate in the organs of digestion.

9th Pair. The *Linguales*. Lingual. They penetrate the muscular substance of the tongue and chiefly induce its movements.

There are thirty-one pairs of *Spinal Nerves*,—Eight in the neck, twelve in the back, five in the loins, six sacral.

* A *plexus* is an irregular network of nerve fibres, very like a ravelled skein of thread.

Each nerve arises from the spinal marrow by* a double root,—an anterior or *motor*, a posterior or *sensitive*; the filaments almost immediately unite and form a common trunk, into which are fused the functions of sensation and volition: they leave the interior of the spinal column, through the apertures between the vertebræ.

The eight pair of *Cervical nerves* (nerves of the neck) are distributed over the back of the neck and head, and parts adjoining: the lower five pairs give off branches, which form plexuses, whence proceed the nerves, that pass down the arms and forearms, and supply the hands and fingers.

The *Dorsal nerves*, twelve pairs, ramify over the back and trunk of the body; they also influence the muscles of respiration.

Five pairs of *Lumbar nerves* distribute branches to the lower parts of the abdomen within and without: they furnish the nerves which go to the upper and forepart of the lower extremities.

The *Sacral nerves* arise from that part of the spinal marrow, which is contained in the pedestal of the vertebral column, or os sacrum; they unite to form large plexuses which give origin to the *Sciatic nerves*. These are the largest in the whole body: they pass down the back part of the legs, detaching branches to all the parts in their course: descending with the arteries and veins, they supply the lower extremities, and are ultimately distributed to the ankles and feet.

Another section of the nerves, differing somewhat in structure, and very considerably in function, from those

* Sir Charles Bell was the first to discover, and to determine with great accuracy, the truth of this very curious fact. If the sentient root of one of these nerves is divided, the part supplied by that nerve loses *all its feeling*, though the *motion* of the muscles is quite unimpaired; and *vice versa*.

already noticed, is called the *Great Sympathetic*, or *Ganglionic System*.

Two nerve cords extend on each side of the spinal column, down the neck and chest, through the abdomen, into the pelvis. They are connected by large filaments with the brain, and all the nerves which arise from the spinal marrow, and directly or indirectly with almost all the other nerves. At most of the points of junction *Ganglia* are formed : from these issue branches which go to form secondary ganglia, and large plexuses ; whence proceed the nerves that actuate the stomach and other organs of digestion and assimilation. The peculiarity of this segment of the nervous system is, that it imparts neither sensation nor volition. In a morbid state indeed, the parts supplied by it are roused to consciousness, and often feel acutely ; but even then they are out of the control of the will. It seems to keep up a store of energy, collateral to and apart from that of the nerves in general, by which the organs of nutrition, which it almost exclusively influences, may fulfil their functions whether we sleep or wake, attend to them or not. The heart beats, the lungs play, digestion goes on, nutrition is accomplished, *involuntarily* and *unconsciously*. It harmonises, too, into one efficient confederacy, in the process of nutrition, organs so different both in structure and function, that it would seem to be impossible for them to work together for one common purpose if the result was not so perfect. By its extensive ramifications, those kindlinesses and disturbances which distant organs feel and show for one another are chiefly induced. If the head is pained or perplexed because the stomach is out of order,—if the lungs and heart are reciprocating their troubles or their well-being,—if the eye sees double because digestion is going on badly,—in short, if one part is feeling for another, it is due chiefly to the relationship produced by the *Great Sympathetic System*.

THE WILD BOAR.

(*Sus scrofa*.)

WE have a specimen of the family of swine in that well-known and useful animal with whose portrait Sir Charles Bell furnishes the reader as an example of a head as remote as possible from the head of him who designed and executed the Elgin marbles. Although the learned anatomist brought forward the profile of this animal as the type of a "non-intellectual" being, yet there are instances enough on record to show that pigs are not devoid of intelligence, and are even, when trained, capable of considerable docility. "Learned pigs," however, such as are exhibited at country fairs, are a rare occurrence, and the family to which they belong is essentially one "gross" in character, and far from gaining in appearance. The most handsome of the race is one from West Africa, recently added to the Zoological Gardens, and described by Dr. Gray under the name of *Potamochoerus penicillatus*. The wild swine of Africa are, with this bright exception, anything but handsome, either in shape or colour; and the large excrescences on their cheeks and face give the "wart-hogs" a ferocious look which corresponds with their habits. In the East there are several species of wild swine. One of the most celebrated is the *Babyrusa* of the Malay peninsula, distinguished by its long recurved teeth, with which it was once fancied that they suspended themselves from trees, or rather supported themselves when asleep. Mrs. M'Dougall* refers to the wild hogs of Borneo, which seem to be dainty in their diet, as they think nothing of a swim of four miles from their jungle-home to places on the

* Letters from Sarawak, p. 104. 1854.

river where they know there are trees laden with ripe fruit. These Borneo swine are active creatures too, as they can leap fences nearly six feet high. In South America the sow family is represented by the Peccaries (*Dicotyles*), of which there are two species, one of which is very abundant in the woods, and forms a most important article in the diet of the poor Indians. They, too, can swim across rivers, and although their legs are short, they can run very fast.

It is chiefly in the warmer parts of the world that the species of this family are found. They are all distinguished by the middle toes of each foot being larger than the others, and armed with hoofs,* the side toe or toes being shorter and scarcely reaching the ground. The nose terminates in a truncated, tough, grisly disk, which is singularly well adapted for the purpose of the animals, which all grub in the ground for their food. In some parts of France it is said that they are trained to search for truffles.

Having briefly alluded to different species "*de grege porci*," we now limit ourselves to our immediate subject.

The Wild Boar at no very remote period was found in the extensive woods which covered great portions of this island. The family of Baird derives its heraldic crest of a wild boar's head from a grant of David I., king of Scotland. This monarch was hunting in Aberdeenshire, and when separated from his attendants the infuriated pig turned upon him; one of his people came up and killed it, and in memory of his feat received from the grateful king the device still borne by the family. The name of a Scottish parish, and of one of the oldest baronial families in Scotland—Swinton, of Swinton in Berwickshire—is derived also from this animal, the first of the Swintons having cleared that part of the country from the wild swine which then infested it. It is

* "Divides the hoof, and is cloven-footed, yet cheweth not the cud."
—Leviticus, ii. 7.

curious to know that some large fields in the neighbourhood of Swinton still carry in their names traces of these early occupants. Dr. Baird informed the writer that there are four of these fields so distinguished:—"Sow-causeway," and "Pike-rigg," where the wild swine used to feed ("pick their food"); "Stab's Cross," where Sir Alan Swinton with his spear pierced some monarch of the race; and "Alan's Cairn," where a heap of stones was raised as a monument of his hardihood. In the southern part of our island only the nobility and gentry were allowed to hunt this animal; and in the reign of William the Conqueror any one convicted of killing a wild boar in any of the royal demesnes was punished with the loss of his eyes.

In many parts of the Continent the wild boar is still far from rare, and affords, to those who are fond of excitement, that peculiar kind of "pleasure" which involves a certain amount of danger. Scenes somewhat similar to those depicted by Snyders may still be witnessed in some parts of Germany; and in the sketches of Mr. Wolf, the able artist whose designs illustrate these papers, we have seen animated studies of this truly hazardous sport.

The nose of the wild boar is very acute in the sense of smell. A zealous sportsman tells us, "I have often been surprised, when stealing upon one in the woods, to observe how soon he has become aware of my neighbourhood. Lifting his head, he would sniff the air inquiringly, then, uttering a short grunt, make off as fast as he could."* The same writer has also sometimes noticed in a family of wild boars one, generally a weakling, who was buffeted and ill-treated by the rest. "Do what he would, nothing was right; sometimes the mother, uttering a disapproving grunt, would give him a nudge to make him move more quickly, and that would be a sign for all the rest of his relations to begin

* Boner's "Chamois-hunting in the Mountains of Bavaria," p. 97.

showing their contempt for him too. One would push him, and then another; for, go where he might, he was sure to be in the way." In the extensive woods frequented by this animal in Europe, abundant supplies of food are met with in the roots of various plants which it grubs up, in the beech-mast, acorns, and other tree productions, which during two or three months of the year it finds on the ground. Although well able to defend itself, it is a harmless animal, and being shy retires to those parts of the forests most remote from the presence of man. A site in the neighbourhood of water is preferred to any other.

Travellers in the East frequently refer to this animal and to its ravages when it gets into a rice-field or a vineyard; for although its natural food be wild roots and wild fruits, if cultivated grounds be in the neighbourhood its ravages are very annoying to the husbandmen, who can fully and feelingly understand the words of the Psalmist, "The boar out of the wood doth waste it." (Ps. lxxx. 13.)

Messrs. Irby and Mangles* as they approached the Jordan saw a herd of nine wild pigs, and they found the trees on the banks of a stream near that river all marked with mud, left by the wild swine in rubbing themselves: a valley which they passed was grubbed up in all directions with furrows made by these animals, so that the soil had all the appearance of having been ploughed up.

Burkhardt mentions the occurrence of the wild boar and panther together, or the *ounce*, as he calls it, on the mountain of Rieha, and also in the wooded part of Tabor. He mentions "a common saying and belief among the Turks, that all the animal kingdom was converted by their Prophet to the true faith, except the wild boar and buffalo, which remained unbelievers; it is on this account that both these animals are often called Christians. We are not surprised

* Travels, (Home and Colonial Library,) p. 147.

that the boar should be so denominated ; but as the flesh of the buffalo, as well as its *Leben* or sour milk, is much esteemed by the Turks, it is difficult to account for the disgrace into which that animal has fallen among them ; the only reason I could learn for it is, that the buffalo, like the hog, has a habit of rolling in the mud, and of plunging into the muddy ponds in the summer time up to the very nose, which alone remains visible above the surface.”* Wild boars were frequently fallen in with by this traveller during his Syrian travels in the neighbourhood of rush-covered springs, where they could easily return to their “wallowing in the mire;” he also met with them on all the mountains he visited in his tour. In the Ghor they are very abundant, and so injurious to the Arabs of that valley that they are unable to cultivate the common barley on account of the eagerness with which the wild swine feed on it, and are obliged to grow a less esteemed kind with six rows of grains, which the swine will not touch.

Messrs. Hemprich and Ehrenberg tell us that the wild boar is far from scarce in the marshy districts around Rosetta and Damietta, and that it does not seem to differ from the European species. The head of a wild boar which these travellers saw at Bischerre, a village of Lebanon, closely resembled the European variety, except in being a little longer. The Maronites there, who ate its flesh in their company, called it *chansir*,† a name evidently identical with the Hebrew word *chasir*, which occurs in the Bible. The Turks, according to Ehrenberg, keep swine in their stables, from a persuasion that all devils who may enter will be more likely to go into the pigs than the horses, from their alliance to the former unclean animals.

A. W.

* Travels in Syria and the Holy Land, p. 9.

† *Symbolæ Physicæ*.

REVIEW OF THE MONTH.

THE Church of Rome has nearly completed the deification of the Virgin Mary. On the 8th of December, after four days spent in solemn consultation with several hundred bishops and high ecclesiastics, assembled some of them from regions as remote as China and Nova Scotia, the Pope proclaimed from the throne of St. Peter, "It is an article of faith, that the Blessed Virgin Mary, from the instant of her conception, by a peculiar privilege and by the special grace of God, through the merits of Jesus Christ the Saviour of mankind, was preserved exempt from all taint of original sin." The cannon of St. Angelo saluted the new dogma, and all the bells of Rome invited the world's homage to the "Queen of Heaven;" but from France, Belgium, and other Papal realms, the Roman rejoicings have brought back a very feeble response. A few of the assembled prelates,—the "Moniteur" says thirty-two, the "Univers" says only four,—demurred to the seasonableness of the proceeding; and most sensible Catholics feel that they are asked to believe quite enough already. We are disposed to agree with the Tuscan correspondent of the "News of the Churches," who says, "It is the vanity of Pio Nono that has forced on this matter. The poor old man wishes to signalise his reign in some way; and as he has no administrative talents, and made a pretty mess of his attempt at politics, he has now tried his hand on the dogmas of the Church."

Occasional intercourse with friends from Sweden has lately attracted our attention to that fine old land. Amongst the students at its universities, and amongst the inhabitants of various districts, there is a rapid increase of religious earnestness, which has been materially increased by the transla-

tion of English books and tracts; but, finding inadequate provision for their spiritual cravings in the preaching of a formal clergy, many of the people have begun to meet for mutual edification in private conventicles. Against these there are heavy penalties, the enforcement of which is likely to give rise to grievous persecution; whilst, to aggravate the evil, some of the Separatists have begun to doubt the lawfulness of infant-baptism. On the other hand, holding the doctrine of "Sacramental efficacy" to the full extent of sacramental salvation, the parental government of Sweden insists on the baptism of every infant born into the kingdom; and the collision betwixt Christian conscience and the law of the land has already given rise to some distressing incidents. But, as many of the younger clergy are pious men, and as there is a growing sentiment in favour of liberty of worship, we trust that happier times are at hand. Meanwhile a student writes to a friend in Scotland, "Even from Lapland we hear of lively awakenings,—how whole villages have split up their brandy-vats, which formerly were greatly valued by them;—how the judges in some districts have nothing to do, because the people are reconciled in love and peace with one another."—"Record of the Free Church.") And as one act of patriotic legislation, it is worth mentioning that the tax on ardent spirits has been increased two-and-thirty fold. The havoc which intemperance is working amongst the inhabitants has startled the king and the parliament.

The Edinburgh press has been very diligent this winter, and has produced several books of solid and enduring value. The third and fourth volumes now published complete Dr. Gordon's posthumous work, "Christ as made known to the Ancient Church;" a work which, with its sanctified intellect and unpretending grandeur, will form a worthy monument to a "Master in Israel." Under the title, "The Doctrines of the Bible developed in the Facts of the Bible,"

the Rev. George Lewis has thrown a fresh interest over the study of the Old Testament, and has furnished for the study of Christian families a book of incidents vividly narrated and of great lessons strikingly enforced. To Dr. Gardner we are indebted for a "Christian Cyclopædia," carefully compiled, and combining in one goodly volume the several merits of a Dictionary of the Bible and a Cyclopædia of Theology and Church History. In the border land between theology and letters we have "The Christian Life, Social and Individual," by Peter Bayne, M.A. Its author is an enthusiastic admirer of Carlyle, and has, with great ability, brought the Christian faith and the Christian philanthropy to solve those matters which are too hard for the Chelsea philosopher. To young men especially we would recommend this volume with its thoughtful reasonings and its brilliant biographies. In fiction Heinrich Conscience's "Tales of Flemish Life," (translated,) are very charming, and entirely new. And though late, we cannot omit our emphatic tribute to "The Quiet Heart,"—a story which, with its deep clear insight, its gentle but strengthening sympathies, and its pictures so delicately drawn, has captivated numerous readers, and will linger in many a memory a good and pleasant influence.

Under the superintendence of the Rev. R. Bickersteth a series of "Christian Biography" is announced, and has made a good beginning in a new Life of William Cowper. We have been much interested in a sketch of "The Chinese Rebel Chief, Hung-Siu-Tsuen," by the late excellent Mr. Hamberg. And to those who desire an account of the Vaudois Christians, at once brief, authentic, and popular, we would recommend Miss Willyams' "History of the Waldensian Church," which tells nothing but what we want to know, and nothing which a well-informed Waldensian would not countersign.

Three weeks ago we had the opportunity of visiting the Free Library at Manchester. Although at an hour so early as four in the afternoon, there could scarcely be fewer than two hundred persons present, many of them evidently working men. The Library now contains nearly 30,000 volumes, and under the guidance of the intelligent librarian, Mr. Edwards, we had an opportunity of rapidly inspecting its contents. It is, as it ought to be, especially rich in British history and topography, and its collection of political and commercial pamphlets, already amounting to thousands, promises soon to be unique. Nor were we sorry to see in it a few bibliographical curiosities, such as the first edition of "The Paradise Lost," and the second edition of Shakspeare. During the year which ended on September 5, the issues from the Reference Department amounted to 64,578 volumes, and from the Lending Department to 77,767 volumes.

Mr. Lowe, of Highfield-house Observatory, near Nottingham, has published his *resumé* of the weather of 1854. In some respects it has been a remarkable meteorological year. In March the barometer, reduced to the level of the sea, rose to 30·928 inches: in January it had been as low as 28·982, a range of two inches in two months. On January 2 and 3 the thermometer sank to -4° ; in July it rose to 86° , showing a range in temperature of 90° : but between the greatest cold on the grass and the greatest heat in the sun there was a range of 124° . The drought was also unusual, there being twelve inches less than the ordinary amount of rain. In the months of February, March, April, June, September, and October, there were only three inches of rain, and out of 180 days 129 were fine. The first snowdrop flowered on the 20th of February, being twelve days later than usual; the first cuckoo was heard on the 8th of May, eleven days "behind time;" but the first strawberries were ripe on the 14th of June, a day earlier than the average.



The Syrian Lion. (Felis Leo.)

SCENES IN HISPANIOLA.

I. THE MORNING RIDE.

It was a lovely night in the Tropics. A sky of the deepest purple was studded with stars that flashed and sparkled, like gems on the mantle of an Oriental monarch. The moon had set, and lofty woods on each side cast the narrow rocky bridle-path into almost total darkness. The air was balmy, fragrant, and cool ; and a breeze was sighing musically, like the cadences of an *Æolian* harp, in the tops of the trees.

On such a night, in a month that to us would be stern and bitter winter, about the middle of the last century, three men were slowly wending their way, down one of the little valleys that occur by hundreds in the central mountainous region of Hispaniola. They had just left the gate of an extensive coffee-plantation, the property of one of them, with a view to seek adventure and novel entertainment for another. All three were well mounted, on the sure-footed and mettled horses that the pastures of the island produced so abundantly.

The youngest of the party was a handsome man of some seven-and-twenty years, whose dress, though loose and light in accordance with the clime in which we find him, was not unsuited to the rank of a young Spanish *hidalgo*. Don Carlos de Badajar, the descendant of one of those noble families to whom lands in Hispaniola had been assigned soon after its discovery, was the first of his name who had personally visited his estates. The revival of literature in Spain, under the wise administration of Fernando VI. and Carlos III., had been specially felt in the University of

Valladolid, where this youth had been educated; the discoveries of Linnæus were just then engrossing the attention of Europe, and Don Carlos had conceived the idea of visiting his possessions in the Indies, with a view to see the gorgeousness which nature was reputed to display beneath the brilliant sun of the torrid zone.

The man who rode by his side was the owner of the plantation which they had just left. He was a Creole Spaniard, and nearly twice as old as his young companion. He was dressed, according to the fashion of the country, in a *camisa* of striped gingham, breeches of ticking, and a *chaqueta* or sleeved tunic, of the same material as the *camisa*. Half-boots or mocassins of untanned hide, a sportsman's belt, a girdle in which was a heavy hunting-knife, and a wide-flapped *sombrero*, or hat, of palm-leaf, completed his equipment.

Trained up by a father who had emigrated from Europe in middle life, Señor Gomez had not sunk into the apathy and indolence which were so general among the whites of the island; his farms gave evidence of energy and prudence, and a small but well-studied collection of books had occupied his leisure and enlarged his ideas. Don Carlos had been directed to this intelligent planter as the person best fitted to forward his views, which he found no one in St. Domingo, the capital, capable of understanding; and the Creole at once entered with alacrity into the proposal to accompany his noble visitor on some excursions in that romantic region.

The third individual was a stalwart African, little burdened with clothing of any kind, who rode behind to perform such services as might be required.

For about an hour the travellers pursued their way along the narrow path through the forest, which now and then receded a little on either side, and at other times was so close that the foliage could be touched, meeting overhead,

and shutting out the starlight. Yet there were lights. Multitudes of sparks were bespangling the dark forest, now brightening into a flame, then sinking into obscurity, and again brightening. Some were sailing to and fro; others crept up the trunks, or alighted on the waving leaves; some were ruddy like a candle-flame, others were white like the pure light of the moon, and others were of a blue or green lustre. Sometimes, close to the ground at the margin of the forest, a gleam of red light shot rapidly by, casting a broad flare on the grass as it swept along; or, rising, would dash in headlong curves before the horses, causing them to start and swerve with the crimson glow.

"How beautiful are these!" exclaimed Don Carlos: "they are doubtless the fire-flies of which I had heard; but how far superior is their light to that of our Spanish glow-worms! Would it be possible to catch one, Señor Gomez?"

"Nothing easier," said his friend; then, calling to the servant, "Heigh, Pepe! get down, and catch the *cucuje*."

The man in an instant brought from the woods the soft-bodied insects that produced the alternately increasing and dying light; and presently returned with a couple of *cucuje*. It was a large beetle, with two oval spots on its back, which, like windows, allowed a green radiance to flash forth from its interior.

"Allow me to show you," said Gomez, "another light; the glare upon the ground does not come from these spots, but from beneath." Then, opening with his fingers the stiff wing-shields of the insect, he bent the body backwards; when from the stretched middle there appeared a red light, as if the whole of the creature were composed of metal at a red heat within. "I have heard," he continued, "that the Indians used to carry these as flambeaux when they travelled by night; and you see they would be of some service."

Their way now led through a broad, grassy dell, around which the forest stood like a black border; but by the starlight the travellers could see a rivulet winding along the bottom, and clumps of orange and other fragrant fruit-trees studding the meadow. A dozen gushing throats were sending up bursts of melody from these trees, serenading the burning stars of that pure sky.

"These are the *Ruiseñors*, as we call them," said Gomez; "but I have heard my father say they are not the same as the Ruiseñor of Spain."

"They may well compare with that most renowned songster of the old world, that our Moorish invaders taught us to call 'the Lord of the Rose.' Solemn and sweet the music is! Doubly sweet and doubly solemn under such a starry heaven as this, with all silent else. It is like the singing of the vesper hymn in the cathedral of Valladolid, when only a solitary lamp is burning."

"Rather matins, for we cannot be far from daylight now," said the planter. "Listen to the *Guitaguitas*."

Numbers of voices, uttering in rapid succession the syllables by which he had designated them, had suddenly filled the air; so suddenly that they seemed as if they proceeded from the spiritual tenants of the air itself, and the more so, because the eyes directed upwards could detect no substance, no flitting body, nothing but the quivering and glittering stars. Yet the voices manifestly swept by, sometimes close to the head, then remote and far up, varied at intervals by a hoarse booming note, like the bellow of a bull. At last the hidalgo thought he detected shadowy forms flitting along in lines, and crossing each other's courses at all angles.

"We always consider these birds a token of daybreak, for they scream thus only just before morning twilight, or

just after evening. But there is another sign. See the cross yonder! it has begun to fall."

Don Carlos looked to a cleft in the mountain, and beheld in the sky thus revealed, not far from the horizon, the beautiful constellation of the Cross, that symbol of the Christian's faith, which, from its blessed associations, and from its position, can scarcely fail to draw his thoughts, as well as his eyes, from earth to heaven.

The land-wind had freshened, and came down the gullies in gusts from the mountain, cold enough to make the travellers quicken their steeds, but laden with the fragrance of a thousand flowers, that yield their perfume most freely to the dews of night. But it was night no more; for a single slender pencil of rosy light suddenly shot from the eastern mountain-brow to the zenith, as distinctly as if a narrow orifice had been opened in the sky; and, quick as thought, other rays diverged from the same point, darting across the heaven, till the whole vault, even to the western quarter, resembled a vast fan of pale crimson radiance. At the same instant the *Pipiri*, from the crown of a neighbouring cocoa-nut tree, saluted the dawn with his shrill cry of *pipi-pipi-piroo*; the clarion of the cock and the clack of the pintado arose from some negro-yard within the woods; doves moaned plaintively from the river-side; the Ani began to call from the fruit-trees, and the Chinching to imitate, with his metallic voice, the smittings of the smith upon his anvil. Daylight was come, and nature was awake and dressed.

On looking round the travellers found themselves in a lovely valley; the narrow road, a scarcely trodden path upon the short green turf, followed the windings of a little clear rocky stream, in which were seen several *garzas*, or herons of snowy plumage, wading with stately gait, or standing with bent neck and intent gaze, watching for prey; these, as the

horsemen approached, successively rose on broad flapping wing, only to settle again as soon as the intrusion was past. The ground receded on either side of the rivulet, forming a broad plain of short smooth grass, brilliantly verdant in the neighbourhood of the water, but showing elsewhere many wide patches of yellow-brown, the result of prevailing drought; for it was near the end of the dry season, and nature, especially in the lowlands, was longing for the vernal rains. Many trees, some in clumps, and others in solitary dignity, were studding the plain, giving it the beautiful appearance of an European park, except for their unwonted aspect and character. For here was the majestic *Ceiba*, a giant of vegetation, whose enormous trunk sent out on every side great perpendicular spurs, like walls of timber radiating from the centre. And here and there towered the elegant *Palma real*, its slender stem, swollen in the middle, rising like an iron pillar to the height of a hundred feet before it threw out its beautiful globose crown of fronds. But chiefly grew here the aromatic *Pimenta*, to whose growth this valley was devoted; the smooth white trunks of this elegant tree were seen all around, and the air was fragrant with the spicy odours that emanated from the glossy myrtle-like foliage, and especially from the black pungent berries which scores of gaily-coloured birds were eagerly devouring. Around all arose at some distance an amphitheatre of hills, partly covered with woods, and mostly crowned with tufts of *Bamboo*, that gigantic grass, which spreads out its arching tufts like plumes of ostrich-feathers. Lofty mountains, blue and distant, gave a noble background to the picture, as the veil of mist that had lain in the valleys rolled up their sides, and were dissipated in the beams of the advancing sun, which was arraying their summits with crimson and gold.

Towards the end of this valley, smiling in tropical beauty and loveliness, the travellers passed through a scat-

tered *villorio*, or hamlet, of low straggling houses, each embowered in its grove of fruit-trees, and surrounded by fences of prickly shrubs. There was a mingled hum of many confused sounds; the poultry, the domestic animals, the small birds that delight to congregate around human habitations, the bees that were murmuring in the gardens, and the human voices that came from the open doors and windows,—widely different from the utterances of the forest and the mysterious sounds of night,—that our friends felt to be cheerful and exhilarating as they drew up before a cottage.

“Here,” said Señor Gomez, “dwells my old facetious friend Padre Tomaso, the priest of the village; he is a capital shot and a keen sportsman; perhaps he will accompany us.”

The Padre was seated at a small table in the open veranda, up the posts of which many climbers were twining, loaded with beautiful flowers. He did not see the visitors as they passed through the gate, for he was anxiously turning over the leaves of a large book that was on the table before him, and gazing into it with a perturbed countenance.

“*Buenos dias, Padre Tomaso! Como lo pasa usted?*” shouted Gomez, as he sprang from his horse, and threw the rein to the negro Pepe.

The cloud passed from the worthy priest’s face in an instant, as he looked up over his horn spectacles, and holding out both his hands, returned the salutation. “*Vaya!* and is it my excellent friend Señor Gomez? Welcome, welcome; and welcome too the honourable cavalier whom you bring with you. Well, you are up early, and you are wise, for I see you are out for sport; and, as the proverb says, ‘Who would eat the hare for breakfast, must hunt him over night.’”

“We have not exactly done that, Padre; but we have

set out over night that we may catch him in the morning; but what say you, will you accompany us? This honourable gentleman is an hidalgo of Spain, Don Carlos de Badajar, eminent in wisdom and learning, who has taken the trouble to cross the ocean-sea to learn what strange things are to be found in our poor country,—to see with his own eyes the wonders of which the Admiral, Don Christopher, wrote and spoke to their serene majesties.”

“Most excellent Señor,” replied the Padre, turning to the young Spaniard, “I rejoice to make your acquaintance. Yes, there are things worthy to be known in this country. You shall breakfast with me, Señores; and I think Don Carlos will own that our jerked wild-pork, and our pimentadoves, when grilled as my Paquita can grill them, have a flavour that nothing in old Spain can equal. At least, I never tasted anything like them in the refectory of San Geronimo. *Paquita, sirve el almuerzo!*”

“I fear we interrupt your devotions, Father,” said the stranger; “for you were reading when we arrived.”

“It is my breviary, indeed,” he replied, shutting up his book, while the cloud of sadness again passed over his merry face. “I was searching for the exorcism, for you must know,” said he, lowering his voice, “Sathan is very powerful in these distant islands.”

He proceeded to inform them of the losses which his dove-cote and poultry-yard had recently sustained; so many of his cherished pets having died, that he felt assured there was witchcraft in the case; and his suspicions rested on a negro of a neighbouring plantation, who bore the reputation of an Obea man or wizard, and whose power was even more dreaded than the Padre’s own. “And yet,” he said, in a tone of ambiguous cheerfulness, “I trust that *Santa Maria purissima* is stronger than Sathan, and that I shall drive him out by means of bell, book, and candle. But

come, why should I trouble you with this? Let us go in, for breakfast is ready."

The viands justified the worthy priest's enthusiasm, and, to say the truth, none enjoyed them more than he; though the appetite of the travellers, whetted by the night air and the journey, was by no means lacking. The grilled pork was tender and game-flavoured; the great wild-pigeons had acquired an aromatic sapidity from feeding on the pimenta berries; and the flesh of the iguana was of equal whiteness and delicacy, and of superior richness, to that of a capon. The chocolate, coloured with annotto, was perfumed with vanilla from the fantastic flowers that drooped in festoons from the veranda. The fruits were freshly gathered, cool in the morning air, but full of fragrance and luscious sweetness, as the tropical fruits only are. The *aguacate*, dipped in the gravy and eaten with salt and pepper, melted like marrow on the palate; the roasted plantain smoked on the dish. The *guanabana*, a fruit as large as a child's head, was eaten like a custard by means of spoons out of the leathery rind; juicy oranges, russet *nisperos* of sugary sweetness, fragrant pines, and other noble fruits, were heaped on the table like the most ordinary productions; and the whole was finished with a delicate *dulce*, or conserve, of the crimson-pulped *guayabo*, which grew in such plenty on the banks of the little stream as to have conferred upon it the name of the Guayabino.

After the *benedicite* had been pronounced, and the olive damsel with kerchiefed head had removed the *dissecta membra*, the host slyly drew from a closet a black antique bottle, and, with a twinkle of his little grey eyes, put it on the table with glasses. "*Vaya!*" said he, "if it is a feast, let it be a feast! let us wash down the fruit with a glass of *vino tinto*. *A la salud de ustedes, Señores!*" Φ

HEARTS OF OAK.

ENDURANCE.

It is frequently said that the courage which enables us to face an immediate danger without flinching, is more common than that fortitude by which we patiently bear protracted suffering and privation. Still, it is from those who excel in courage that we expect the most striking examples of endurance; and the following incidents will serve to show that the spirit of a British sailor does not give way in the presence of danger which may be borne, but which cannot be averted.

Attached to the expedition of Commodore Anson in 1740 sailed the *Wager*, an old Indiaman, fitted up as a man-of-war and store-ship. She was worn-out and over-laden; her seamen were a motley and discontented set of unserviceable men; the soldiers whom she carried were invalids; and the voyage which she had to encounter was not only long, but through seas that have scarcely yet ceased to be the dread of navigators.

Stormy weather had carried away the mizen-mast, and strained the timbers, while it separated the vessel from her consorts; and through a slight error in reckoning, the ship had got into a position from which her crew, disabled by fatigue and sickness, could not extricate so crazy a craft. She was accordingly wrecked on an island off the western coast of South America, about ninety leagues to the northward of the Straits of Magellan.

At four in the morning, after a night dreadful beyond description, the *Wager* struck on a coast as inhospitable and dangerous as that of the Crimea. Every one thought his

condition hopeless ; and most of the people being sick with scurvy, the scene on her deck was one of confusion and despair. Captain Cheap and some of his officers retained their presence of mind ; and at daybreak, when the weather moderated a little, contrived to get the greater part of the crew on shore. But they had been pressed in the first instance, were disgusted at so tedious a voyage, disaffected towards the captain, and filled with despair by their misfortunes ; so that many refused to leave the ship, and endeavoured to drown their reflections in rioting and drunkenness. This was not conduct befitting British seamen ; but, indeed, few of them were in any way worthy of the name, and the faults of malefactors forced into the service must not be charged upon our "Hearts of Oak." The miseries of those who were an honour to the profession were enhanced by the faults of these men, and by so much the more is their fortitude to be admired.

Among these was the Hon. John Byron, then a midshipman, but afterwards well known as Commodore Byron, whose narrative we shall follow.

When on land their condition was little bettered, as they had wet, cold, and hunger to struggle against, and found only the ruins of an Indian wigwam to shelter them. Here they sustained a wretched existence by gathering limpets and wild celery, by fishing up from the wreck such supplies as they could find, and by killing sea-fowl, or even a sort of carrion crow which fed upon the mangled bodies of their companions cast up by the waves. A store-tent was established, in which provisions recovered from the remains of the ship were deposited ; but the privations of the men induced them to steal from it so frequently, that Mr. Byron and his messmates, after being fatigued by day in hunting for sustenance, were harassed by night in keeping watch over it. Some savages were seen whose dogs they bought for food,

but who could not further assist them ; and after some time the long-boat, which had been unavoidably left on board, was freed from the wreck, and they began to prepare her for a voyage, in hopes of making their escape from their dismal situation, which was aggravated by constant storms, rendering it impossible for them to put to sea even to obtain water-fowl. Their number was reduced from 145 to 100 by famine and sickness, and the survivors suffered every day the severest privations. Mr. Byron, not liking any of the parties into which his shipmates had divided themselves, built a little hut, which he shared with an Indian dog, who could shift for himself, and had become greatly attached to his master. One day a party came to his habitation and told him they must take his dog or starve. He endeavoured to save his favourite, but they carried him off by force and killed him, whereupon his owner, thinking he had as good a right as the rest, partook of their meal. "Three weeks after," says he, "I was glad to make a meal of his paws and skin, which I found thrown aside and rotten."

At last the long-boat sailed, the crew intending to make their way home through the Straits of Magellan, and twenty were left, including the captain and four officers. These patched up the remaining boats and started for Chiloe ; but after great hardships, were obliged to return to their island. When they lost the yawl and were compelled to abandon some of their companions, for whom there was no room in their only remaining boat, it is affecting to read that these poor fellows, left thus to almost certain death, parted from their messmates with three cheers, and shouting, "God bless the king."

Soon afterwards they fell in with an Indian chief, who undertook to direct them to Chiloe. In his company they still suffered the most terrible privations and endured the greatest fatigues ; but in June (having been wrecked in

May of the previous year) Captain Cheap and three officers were happily landed on the island, the rest having died of starvation or been accidentally separated from their friends.

Upon one occasion during this period Mr. Byron, who had been steering, was called upon to row instead of one of the sailors, who expired from fatigue; and whilst he was thus employed one of the stoutest of the men fell from his seat under the thwarts, complaining that his strength was exhausted, and begging for some little sustenance to save his life. "I sat next to him," says the future commodore, "when he dropped; and having a few dried shell-fish (about five or six) in my pocket, from time to time put one in his mouth, which served only to prolong his pains; from which, however, soon after my little supply failed, he was released by death." The surgeon, also, who had been of the greatest service to the rest, both as hunter and interpreter, "died the death many others had done before him, being quite starved."

After their arrival at Chiloe their circumstances improved; and although they were not at first treated well by the Spaniards, whose prisoners they became, they afterwards spent above two years in comparative comfort in Chiloe, and finally arrived in Europe in December 1745.

About eight o'clock in the evening of the 27th of August, 1826, the Magpie, a small schooner, cruising off the western extremity of Cuba, foundered in a sudden squall. Eight miserable survivors of her crew of twenty-four clung to a boat which floated clear of the wreck. The boat, which had been capsized, was righted under the directions of Lieutenant Smith, the commander of the schooner, who retained his self-possession; and two men began to bale it out, the rest holding on by the gunwale. Scarcely had they commenced, when an alarm of sharks threw the men into confusion, and the boat was again capsized; but none appearing, the lieu-

tenant succeeded in restoring order, and the baling was resumed and continued until about ten o'clock in the morning, when a second cry of sharks once more disconcerted the sailors, and once more upset the boat. For a short time their enemies merely swam round them, but soon two of the men disappeared, and their cries told their fate. Yet Mr. Smith's exertions so far reassured his companions, that the work of baling was recommenced. Just then one of his legs was bitten off; but though thus tortured he endeavoured to control his feelings that he might not increase the panic of his men. Another limb was torn from his body; and he was about to let go his hold, when he was lifted into the boat. In the agonies of so terrible a death he disregarded his own sufferings, and calling to him a lad who appeared most likely to survive, desired him to tell the admiral that his men had done their duty, and that no blame attached to them. "I have but one favour to ask," said he, "and that is, that he will promote Meldrum to be a gunner." Then he shook hands with each, and the voice which had so long cheered that little company was silent for ever.

That day and the next night had nearly passed before Mr. Maclean, a mate, and Meldrum, by that time the only survivors, finally succeeded in getting the boat dry, and both of them forgot their fatigues in a sound sleep. But the pitiless sun soon deprived them of the poor refuge of forgetfulness, and made them sensible of the extent of their misery. Without sails, oars, or provisions, their situation seemed hopeless, until, at eight in the morning, the sight of a distant sail filled them with joy. The vessel approached within about half a mile, but then, to their dismay, altered her course, and no signals of theirs succeeded in attracting attention. Suddenly Meldrum conceived the idea of swimming to her, as a last hope, and boldly he started, but when he had accomplished two-thirds of the ever-

increasing distance his strength began to fail, and he shouted to the people in the brig, with what he expected to be his last breath. But he was heard, both were saved, and a gunner's warrant was never better earned than that which rewarded Meldrum's gallant conduct.

The narratives of the *Alceste*, whose people sustained themselves for three weeks on an unproductive island, amid hordes of hostile savages; of the *St. George*, wrecked on her way from the Baltic, on whose decks the unhappy survivors were compelled to pile up the bodies of their frozen companions as a shelter against the weather; and of many other shipwrecks, are familiar to almost every one, but, perhaps, the most singular instances of continued and patient endurance have been shown in the various Arctic expeditions of the present century.

Each of these voyages and journeys has been more or less a mere succession of hardships and difficulties, in which danger has constantly presented itself under new forms.

So, in Parry's first voyage, after encountering the customary perils of ice-navigation during the summer, the ships had but just reached Melville Island when they were warned of the approach of winter by a heavy snow-storm, in which seven men lost their way and were unable to reach the ship for three days, by which time they were severely frost-bitten. A very few days later the *Griper* was forced ashore by the ice; and her commander, Lieutenant Liddon, although urged to allow himself to be removed to the *Hecla*, as he was only then recovering from an attack of rheumatism, nobly refused to leave his post, and persisted in remaining seated on deck that he might give the necessary orders. Shortly after Sir Edward Parry began to make preparations for wintering in the Arctic seas, which was then looked forward to with the greater dread as he and his companions were to be the first to make the experiment. But he was not content with con-

sidering those dreary months of darkness as a period which called only for the exercise of endurance : he even thought of making an Arctic winter a time of enjoyment and happiness. The health of the men was preserved by attention to cleanliness, exercise, and warmth, while not only were their spirits sustained by plays and other amusements, but they were regularly taught in a well-managed school, and attained in the wildest district of the globe more intellectual (and some of them more spiritual) knowledge than they had acquired in the most highly-favoured.

In this first winter the greatest cold observed was -55° , and some idea may be formed of what those figures represent when we find that on the occasion of a fire breaking out in the store-house, with a temperature of -43° , sixteen men were frost-bitten whilst endeavouring to extinguish the flames. One of these, in his anxiety to save the dipping-needle, ran out without gloves, and his fingers in half an hour were so benumbed that "on his being taken on board, and having his hands plunged into a basin of cold water, the surface of the water was immediately frozen."

In Sir John Franklin's first journey overland to the Arctic Ocean, he and his companions suffered hardships greater, perhaps, than have been endured by any other expedition which has returned safely. During the winter of 1820-21 they were as "comfortable" as men could be in such a situation. They lived on reindeer's flesh and fish, with a little flour occasionally; and with reindeer's fat and strips of cotton shirts they made candles, but these luxuries were soon denied them. In the ensuing spring their meals became scanty, and they frequently had but one a-day, but on their return from their journey to the sea, of the ensuing summer, their condition became dreadful beyond expression.

A snow-storm of great violence overtook them on the 3d September, when they distributed their last morsel of

pemmican, "and having nothing to eat, and no means of making a fire, they remained whole days in bed" while the severity of the weather prevented them from prosecuting their journey. When they did start Franklin fainted, but recovered on eating some preserved soup. "I was unwilling," he says, "to take this morsel of soup, which was diminishing the small and only remaining meal for the party, but the men urged me to it with much kindness." Soon they were reduced to little more than a sort of lichen called *tripe de roche*, and they thought themselves fortunate when they found a supply, which they relished with "scraps of roasted leather." Their misfortunes increased when their progress was stopped by a branch of the Coppermine River, which, as their canoes had been broken by the falls of the people who carried them, and who were blown down by the wind, they had no means of crossing. After vain endeavours to cross by means of a raft, and after Dr. Richardson had been almost frozen in an attempt to swim across with a line, they succeeded in making a canoe. But the delay had been death to many of them. The officers were so weak as to be scarcely capable of walking; the Canadian *voyageurs* were desponding, and Hepburn, a faithful and devoted seaman, collected all the *tripe de roche* upon which Sir John and his officers lived. They reached, however, Fort Enterprise, to which they had looked with hope, but found it perfectly desolate, and were glad to sustain life by pounding and burning the bones which had been thrown upon the dunghill during their former residence there, which bones indeed had once before been treated in the same manner by some Indians who were short of provisions.

Several of the Canadians had died; one had proved treacherous and had murdered his companions with the revolting intention of lengthening a miserable existence by cannibalism, so that the survivors were compelled to put

him to death for their own safety ; and the only persons capable of the exertion necessary to collect the wretched scraps which they ate were Dr. Richardson and Hepburn, when on the 7th November supplies of food were received, and their troubles were soon afterwards ended.

But in the affecting journals of this expedition there is nothing to be found like murmuring and complaint. They shared their food and their shelter together ; they spent their strength for each other ; and they joined with resignation in their prayers to an Almighty Friend who had not forgotten them, and who delivered them out of their distresses. When, in consequence of their privations their “minds exhibited symptoms of weakness, evinced by a kind of unreasonable pettishness with each other,” they endeavoured to overcome what they felt to be their own deficiency, and did not give way to this irritability or to the despair which so painful a failing might well have produced. “So trifling a circumstance,” says Franklin, “as a change of place, recommended by one as being warmer and more comfortable, and refused by the other from a dread of motion, frequently called forth fretful expressions which were no sooner uttered than atoned for, to be repeated perhaps in the course of a few minutes.” Can we too much admire the moderation of Hepburn, who “on one of these occasions,” instead of giving way to passionate expressions, such as are frequently used with less cause, exclaimed, “Dear me, if we are spared to return to England, I wonder if we shall recover our understanding ?”

G. W. S.

COCKER'S ARITHMETIC.

IN the schools of England Cocker was long the presiding genius of numbers. Successive generations of schoolboys from his familiar book were taught the art of cyphering. The name of Cocker was as much bound up with Arithmetic as that of Euclid with Geometry. From the days of Charles II. to those of George III., his authority was supreme and undisputed. Towards the end of last century other books began to be used. Walkinghame's "Tutor's Assistant" was a general favourite for a time, and afterwards Guy and Bonnycastle grew famous, to be followed, in their turn, by more modern treatises. The class-books of arithmetic at present in use are innumerable. But the fame of Cocker survives, though his book has been superseded. His name is historical; and, what proves a still wider popularity, it is proverbial. The Chancellor of the Exchequer himself, in his Budget-speech of last session, was heard to clinch a financial argument with the remark,—
"that is right *according to Cocker*."

Edward Cocker was born in 1632. He was "a practitioner in the arts of writing, arithmetic, and engraving," as the title-page of his works records. He published, during his lifetime, various engraved copy-books; and John Evelyn praised him as "comparable to the Italians both for letters and flourishes." He also published a work entitled, "Tutor to Writing and Arithmetic." But the book with which his fame is chiefly associated was a posthumous publication. It was edited by "Mr. John Hawkins, writing-master, near St. George's Church, in Southwark, by the author's correct copy." The license bears the date, Sept. 3, 1677, and the name of the celebrated Roger L'Estrange. In an "epistle to the courteous reader," Mr. John Hawkins says, "I, having

had the happiness of an intimate acquaintance with Mr. Cocker in his lifetime, often solicited him to remember his promise to the world, of publishing his Arithmetic, but, for reasons best known to himself, he refused it; after his death, the copy falling accidentally into my hands, I thought it not convenient to smother a work of so considerable moment, not questioning but it might be as kindly accepted, as if it had been presented by his own hand." Some doubt has been thrown on the authenticity of the work, but we think without sufficient reason. Hawkins may have made alterations and additions, but he can hardly be charged with forgery, as has been done. Even if it were so, this would prove more completely the early and general fame of Cocker. But he could not have induced so many of Cocker's personal friends to sanction with their names a book of doubtful authenticity. The exact date of Cocker's death is not recorded, but Hawkins seems to have lost little time in bringing out a work "encouraging to his expectation, and the booksellers too." Mr. Edward Cocker's Proeme or Preface is a document worthy of preservation. It commences with an invocation, which, let us hope, was more than a mere formalism of usage, but rather indicating a devout dedication of his labours to the great Giver of his useful faculties. "By the secret influence of Divine Providence," he says, "I have been instrumental to the benefit of many, by virtue of those useful arts, writing and engraving; and do now, with the same wonted alacrity, cast this my arithmetical mite into the public treasury, beseeching the Almighty to grant the like blessing to these as to my former labours." He then discourses on the objects, advantages, and dignity of his art; bursting out into poetry, whether original or not we do not know:—

“Seven Sciences supremely excellent,
Are the chief stars in Wisdom's firmament:

Wherof Arithmetic is one, whose worth
 The beams of profit and delight shine forth ;
 This crowns the rest, and makes man's mind complete,
 This treats of numbers, and of this we treat."

Of his own treatise he speaks in terms somewhat boastful, which we almost suspect to be an addition of his editor, and concludes with a defiance to reviewers :—

"Zoilus and Momus, lie you down and die,
 For these inventions your whole force defy."

Whatever reception the book got from the critics of that day, the public gave it immediate and general support. Editions were published in quick succession, and the fame of the work spread far and wide. Our copy is of comparatively modern date, being of the fifty-second edition, printed in 1748, for R. Ware, at the Bible and Sun, in Amen Corner, C. Hitch at the Red-Lion in Paternoster Row, and J. Hodges, at the Looking-Glass, overagainst St. Magnus Church, London Bridge. It is edited by George Fisher, accomptant ; and the book is described on the title-page as "a plain and familiar method of arithmetic, suitable to the meanest capacity, for the full understanding of that incomparable art, as it is now taught by the ablest schoolmasters in city and country." A portrait of the author is prefixed, with these lines underneath :—

"Ingenious Cocker, now to Rest thou'rt gone,
 No Art can shew thee fully, but thine own,
 Thy rare Arithmetic alone can shew,
 Th' vast sums of thanks we for thy labours owe !"

Professor De Morgan, who has collected many curious notices of "Arithmetical Books," inquires when the name of Cocker became a proverbial representative of the art? He thinks that it dates from the appearance of Arthur Murphy's farce of "The Apprentice," played in 1756, in which the old City merchant's strong point is the recommendation of Cocker's Arithmetic, "the best book that ever was written,"

to the young tragedian, his son. We doubt this very much. It is more likely that Murphy took advantage of a name already familiar to the public, and that the fact of this popularity gave point to the worthy citizen's recommendation. A search in the literature of that time would probably furnish direct proofs of this. Two passages, though somewhat of a later date, occur to us. Dr. Alexander Murray, who rose from being a poor Galloway herd-boy to be Professor of Oriental Languages in the University of Edinburgh, in an autobiographical account of his early life, tells how he laid out his first earnings on books, among which one was Cocker's Arithmetic, "the plainest of all books, from which, in two or three months, I learned the four principal rules of arithmetic, and even advanced to the rule of three, with no additional assistance, except the use of an old copy-book of examples made by some boy at school."

In Dr. Johnson's narrative of his journey to the Hebrides he describes Anoch, a village in Glenmorrison, of three huts, one of which is distinguished by a chimney. "The house was built of loose stones, lined with turf, and wattled with twigs, which kept the earth from falling." The landlord was remarkably civil; and Dr. Johnson records, with some surprise, that he spoke English well, both as to grammar and accent, while on a shelf were some books, among which were a volume or more of Prideaux's *Connexion*. "Some time after dinner we were surprised by the entrance of a young woman, not inelegant either in mien or dress, who asked us whether we would have tea. We found that she was the daughter of our host, and desired her to make it. Her conversation, like her appearance, was gentle and pleasing. We knew that the girls of the Highlands are all gentlewomen, and treated her with great respect, which she received as customary and due, and was neither elated by it nor confused, but repaid my civilities without embarrass-

ment, and told me how much I honoured her country by coming to survey it. She had been to Inverness to gain the common female qualifications, and had, like her father, the English pronunciation. I presented her with a book which I happened to have about me, and should not be pleased to think that she forgets me." Dr. Johnson does not name the book, but in a letter to Mrs. Thrale, written soon after, he tells how tea was made in the hut by "a very decent girl in a printed linen gown," and adds, "she engaged me so much that I made her a present of Cocker's Arithmetic." An incident like this could not escape the observation and comment of Boswell. He tells us that the unnamed book gave rise to much inquiry in London, and to some merriment when it was known what it was. Johnson was not pleased with this, remarking that he had no choice in the matter, as he happened to have only that book about him. "One day," says Boswell, "when we were dining at Gen. Oglethorpe's, I ventured to interrogate him, 'But, sir, is it not somewhat singular that you should happen to have Cocker's Arithmetic about you on your journey? What made you buy such a book at Inverness?' He gave me a very sufficient answer. 'Why, sir, if you are to have but one book with you upon a journey, let it be a book of science. When you have read through a book of entertainment, you know it, and it can do no more for you; but a book of science is inexhaustible.'"

There is much entertainment, and instruction too, to be got out of an old arithmetic book, even apart from the scientific calculations to which Dr. Johnson referred. Without working a single sum, we have often had pleasant meditations over the pages of Cocker. Those examples, composed two hundred years ago, recall bygone times and manners, and awaken many literary and historical recollections. That problem about A starting from London in a post-chaise, and

travelling so many miles an hour, pursued by B riding furiously on horseback,—in how many hours, and after how many miles of travel, will A be overtaken? How this conjures up the days of highwaymen, and runaway matches, and expresses when telegraphs were undreamt of! And the plain sum in reduction of long measure, “I demand how many furlongs, poles, inches, and barleycorns, will reach from London to York, it being accounted 151 miles?” Imagination sees the great north road, along which Dick Turpin rode and Jeannie Deans trudged afoot, with its stirring traffic, and wayside inns, and busy scenes, now made desolate by the railways. In the questions where merchandise is introduced, we can see from the articles named what were the chief channels of commerce in those days, when the trade with the Indies was yet young, and when traffic ran in courses different from those of our time. Nor are illustrations wanting of subjects of social and political economy, such as of the value of the precious metals, and the remuneration of labour, and the rates of wages, and the interest of money, in former times. And when we look over the diversity of weights and measures in different parts of England, gratifying reflections are suggested on the consolidation of laws, and absorption of local usages into national customs, and the increased facilities of intercourse, and other themes suggestive of progressive civilisation and good government. There is history, as well as science and art, in Cocker's Arithmetic.

J. M.

THE STOCK EXCHANGE.

IN our papers on the Funds, we endeavoured to explain that the public debt, or any portion of it, once contracted, becomes an article of merchandise ; and that any person who chooses to invest his capital in it, instead of employing it in commerce or allowing it to lie idle, can without difficulty purchase a portion of the debt, which then stands in his name, and for which therefore he receives interest. The power of doing so is, doubtless, a great convenience to many persons who are unable or unwilling to risk their capital in commercial undertakings. It would be unsatisfactory to lock up all our money in a strong box, like the nobleman we read of in *Gil Blas*, or the *Harpagon* of Molière ; for, besides that, like these worthies, we should have the discomfort of seeing our means of livelihood daily dwindling away, we should also, like them, be in danger of becoming the victims of some enterprising member of the swell mob. We might, it is true, place it in security with some well-established banker, but still we should have to draw upon the principal for our daily expenses, instead of living on the interest while the principal still remained undiminished. To a certain class of people, then, the public funds are a convenient investment. To invest in them is called “buying in ;” the person investing is called a “stock-holder ;” and when, by selling his stock, *i. e.* portion of stock, to somebody else, he ceases to become a stock-holder, he is said to “sell out.” These two processes, requiring, like all mercantile transactions, a certain amount of experience to conduct them properly, have given rise to two classes, or professions, called stock-jobbers and stock-brokers. The former are generally monied men, and large stock-holders, who are ready at any time to buy or sell,

and realise their profits by a per-centage on the stock bought or sold. Often, however, they are great speculators, and some, through luck, or through their skill in perceiving when the funds were likely to rise in price, and so buying in while they were still low in order to sell when they rose, have acquired enormous wealth. Brokers are a kind of middlemen, who buy of the jobbers for those who wish to buy in, and sell to them for those who wish to sell out. Their profit is a commission, one-eighth per cent, or half-a-crown in every 100*l.* stock. There are certain days appointed for executing such bargains ; they are called settling days. The bargains are made in a building called the "Stock Exchange," and carried into legal execution at the Transfer Office, the Bank, or the South Sea House.

In the early days of our national prosperity, which were also the early days of our national liabilities (for alas ! the richer we have grown the more debts have we contracted), the Royal Exchange—a building founded by the well-known Sir Thomas Gresham in the reign of Queen Elizabeth—had long been the resort of merchants in London for purposes of business. Here might be seen the broad hose of the Fleming or Hollander, the gay doublet of the Venetian, and the flowing robe of the Turk, who, equally with the sober London citizen, sought this common ground in quest of bargains, and were thereby saved many a fruitless journey in the days when streets were narrow and unpaved, and vehicles of public conveyance were a luxury as yet undreamed of. What more natural resort could there be for jobbers and brokers, when they first rose into existence, than a place where money was plentiful and commerce rife ? Accordingly this new race of merchants joined the ranks of their fellow-traders ; and for a time the Royal Exchange resounded with the jargon of a new profession, and the sober and dignified citizen was disturbed from his propriety by the din and wrangling

of the more speculative and volatile stock-broker. The merchants were not slow to show their distaste for the interlopers, who, with an independence of spirit which they have ever manifested, determined, like the colonies of antiquity, to find a home where there were none to browbeat or despise them. In 1698 the jobbers posted themselves in a nest of narrow paved alleys lying between Cornhill and Lombard Street, which hence acquired, and still retains, the name of Change Alley. The City authorities now became alarmed, and issued an order that the brokers should transact their business in the Royal Exchange alone,—but in vain; the brokers followed the jobbers as a cat follows milk, and we have little doubt that the merchants were glad to get rid of them.

The jobbers and brokers remained a long time in their new quarters, and for shelter made use of a coffee-house called “New Jonathan’s,” which, in 1773, received the name of “Stock Exchange.” It is probable that they found our changeable climate unfavourable at times to the transaction of business “*al fresco* ;” and it is on record, that the street being open to all, and the appearance of a stranger causing no surprise or inquiry, purses and pocket-books made mysterious migrations, to the great inconvenience of the original proprietors. But the brokers had another reason for desiring to exclude the public. It was ascertained, by a legal decision in 1767, that anybody might buy and sell stock. Hence the monopoly of their profession was threatened, and the only way to protect it was a general understanding between themselves and the jobbers, who should form one society, and transact all bargains in one place. At the present time the principal rules of the society or profession are as follows :—Every applicant for admission must be recommended by three members of two years’ standing, who must give security, each for 300*l.* for two years ; every member must be elected by ballot, and

subscribe ten guineas ; no one in business, no clerk, public or private, can be admitted ; a committee is elected annually, consisting of twenty-eight members, who can at pleasure reprimand, suspend, or expel, any member of the Stock Exchange, with the only proviso, that the committee cannot expel unless twelve of their members are present, of whom two-thirds at least must vote for the measure. Finally, stock-brokers may not be partners ; and when any man is expelled from the Stock Exchange his clerk is expelled with him. Such are the rules laid down to secure the integrity and respectability of all members of the society, which, in 1801, raised for itself by private subscriptions the building of which it still makes use, and which is consequently the present Stock Exchange. "New Jonathan's" is deserted ; Change Alley sees no bargains, at any rate out-of-doors, except for apples and pears. The first stone was laid by Mr. W. Hammond, chairman of the Committee of Management ; and beneath it was placed a copperplate with an inscription describing the objects of the building, and stating that in five successive reigns the National Debt had reached the amount of 552,730,924*l*.

Notwithstanding all the endeavours of the society to keep itself select, black sheep do at times get within its pale, as within that of every other profession. There are also "tricks of the trade," which, although not unlawful, are not altogether to be admired ; and there are private tricks which the law cannot reach, or, at any rate, cannot wholly suppress. As good news cause the funds to rise, and bad news cause them to fall, false reports are sometimes spread by the agents of persons who wish to affect the market in either direction. Thus, in 1715, when the unfortunate son of James II. had just escaped to the Continent, a coach-and-six, starting from nobody knows where, closely guarded, and with blinds drawn down, was driven through the parts

where he was supposed to have lain concealed, and thence with all speed towards London. The report flew up to town like wildfire that the Prince was taken prisoner ; the funds rose rapidly, and certain persons—no doubt the authors of the stratagem—sold largely, and reaped the benefit of it.

As reports favourable to the national prosperity generally cause the funds to rise, and those of a contrary nature have the opposite effect, it is by no means uncommon for members of the Stock Exchange to speculate by investing largely in hopes of a sudden rise, and many, on the other hand, have been ruined by an unexpected fall. Those who have been too greedy for gain or too apprehensive of misfortune, have sometimes had recourse to the unjustifiable measure of spreading false reports calculated to occasion a change in the direction favourable to their interests. Thus, shortly before the death of Queen Anne, a well-dressed man rode at full speed along the roads, shouting for the turnpikes to be thrown open, and hastily informing everybody, as he hurried by, apparently engaged on some momentous errand, that the Queen was dead. The funds fell, for the succession was uncertain, and the Queen's death consequently was a source of general uneasiness; and one or two jobbers,—among others, one Manasseh Lopez, renowned in the annals of the Stock Exchange,—bought very largely, and made a great deal of money by selling, when, the falsehood of the report being ascertained, the funds naturally rose to their former level.

The last great hoax was of a different kind, its object being (like that respecting the Chevalier de St. George) to raise the funds, not to depress them. In 1814, certain French officers, or rather men disguised in their garb, landing at Dover, a post-chaise was ordered and driven with breathless haste along the London road. Before leaving Dover the travellers had mentioned audibly that Napoleon was dead, and there their mission really ended. Arrived in London, they dismissed their chaise, and doffed their bor-

rowed dress, and threw it into the Thames, from which it was afterwards fished up to complete the evidence against them. In the meantime, the report of the Emperor's death spread from Dover to London. The funds rose very rapidly, and certain persons sold out 826,000*l.*, who had only bought in a short time before. They were suspected, and this time the matter was followed up, and the authors of the hoax were convicted by a jury of their countrymen and by the public voice, the latter in such a case as this the more effectual to punish and to prevent. The principal offenders were not members of the Stock Exchange. Had they been so, we need hardly say that they would have been immediately expelled. As it was, their prospects in life were blasted, and themselves held up to the reprobation of society.

There is a vast amount of speculation carried on which, though it offends against no positive law, is certainly not very much to be commended. This is principally done by time bargains, or buying for account. To buy for account is to purchase stock, without paying for it, at a certain price, with the understanding that the settlement shall take place on a fixed future day. If the funds rise in the meantime, the buyer gains the difference; and if they fall, he loses it. The usual plan is merely to hand over the difference, without any transfer of stock, so that the transaction is really a mere wager on the price of the funds. This foolish practice dates its origin from the time when the Bank books were regularly closed for six weeks before each dividend day. Time bargains were almost a matter of necessity when business for so long a time could not be otherwise transacted. An Act brought forward by Sir John Barnard, in 1732, rendered them illegal; but this did not stop them, since its only effect was to make debts irrecoverable by law. A natural consequence of this law is, that a man who is unable to pay his debts is incapacitated by the customs of the Stock Exchange, from transacting business there for the

future. This may in some cases seem hard, but it is unavoidable, since there is no legal protection. The name of a defaulter is posted; but no assertion to his disparagement is made, so that the legal consequences of a libel are avoided. The form is as follows:—“Anybody transacting business with A. B. is requested to communicate with C. D.” Those who buy for account, and consequently wish the funds to rise, are called “bulls;” and those who sell for account, or wish them to fall, are called “bears.” Buying for account is, however, sometimes a *bonâ-fide* transaction, undertaken by merchants or others who wish to raise money for some temporary object. A species of conspiracy has sometimes been made between two persons, one of whom has agreed to buy, the other to sell, largely on account. The result is that one is ruined, the other makes his fortune, and the profits are divided afterwards.

When the funds seem to be rising, the price on account may be higher than the present actual price. The price is then said to be higher for time than for money; and in the opposite state of affairs the price is described as lower for time than for money. If it be my interest to put off the appointed time under the former circumstances, I may be allowed to do so by paying the man with whom I deal a sum called “continuation.” A sum paid in like manner to put off the delivery of stock when the price is lower for time than for money, is called “backardation!”

When the Government are contracting a new loan, sales of stock may take place before the whole of the loan is actually paid up. In this state the stock is called “scrip.”

Lastly, a man who by his own imprudence or by the force of circumstances is disabled from paying his debts, never dares to show his face again on the Stock Exchange; and as he limps away disheartened from the scene of his former triumphs, the poetical imagination of Capel Court describes him as a “lame duck.”

M. M.

NOTES ON GREAT PICTURES.

THE "DESCENT FROM THE CROSS," BY RUBENS.'

Not very long ago, on the right hand as you entered the south transept of Antwerp Cathedral, was a large and dusky green curtain, behind which was a picture much of the same tone of colour; it was a triptych, a centre-piece protected by two folding wings; on the outer side of which were represented St. Christopher, the attendant hermit, with his lantern, and the owl.

St. Christopher was the patron saint of the Arquebusiers of Antwerp, and this picture was an altar-piece consecrated to him by that Company, now some 240 years since. It was an early work of the most celebrated painter that has yet practised his art in Europe north of the Alps—Peter Paul Rubens. What with the effects, however, of varnishings, restorations, and an unfavourable climate combined, this picture had so much suffered that it was scarcely any longer visible even on the brightest days. The subject of the centre panel was the "Taking down from the Cross;" on one wing was the "Visitation," and on the other, the "Presentation in the Temple." But so imperfectly were these compositions seen, and so little did the picture apparently justify its great world-renown, that the authorities determined, after mature consultation, to suffer it to undergo a thorough cleaning. This operation has been, according to creditable report, completely successful; and the picture is now bright and beautiful.

With the exception of its journey to Paris, and exhibition in the Louvre, in the beginning of this century, the vicissitudes of this celebrated painting have been few, but

an interesting story is attached to the history of its origin. As on former occasions, however, we will endeavour to interest our readers somewhat more in this great picture by premising some account of its remarkable author.

Peter Paul Rubens, though of an Antwerp family, was, by the accident of his birth-place, a German; he was born on the day of St. Peter and St. Paul, June 29, 1577, at Siegen, about fifty miles east of Cologne. He is commonly reported to have been born at Cologne; but recent discoveries have shown that, at the period of his birth, his parents were residing temporarily at Siegen.

He was the sixth child of John Rubens and his wife, Mary Pypeling,—as her history shows, a very superior woman. John Rubens was a doctor of laws of the Sapienza of Rome. He had lived in Italy seven years, and he had been sheriff of Antwerp; but religious troubles forced him to expatriate himself. He died at Cologne in 1587, and his widow then returned to Antwerp, where she succeeded in recovering the confiscated property of the family; and thenceforth devoted herself to the education of her children.

Peter Paul, after receiving the ordinary education of a gentleman, was placed as a page with Margaret de Ligne, widow of the Count de Lalaing; but this was a life that his active mind could not endure, and he, with some difficulty, persuaded his mother to allow him to follow the profession of a painter.

After receiving some instruction from Tobias Verhaagt and Adam Van Oort, he was placed, in 1596, with Otho Van Veen, the most celebrated painter of Antwerp at that period. In the spring of 1600 Rubens visited Italy, and at first Venice, where the brilliant colouring of that school soon engrossed his admiration. He was then himself already an accomplished painter, and was persuaded to enter the service of Vincenzo Gonzaga, duke of Mantua, for whom

he executed several copies and other works; and in 1605 he was sent by that prince on a mission to Philip III., of Spain. When at Madrid he painted several portraits of the Spanish nobility. He returned to Italy; and late in the autumn of 1608 received intelligence of the illness of his mother, whom he had not seen since his first departure from home in 1600; and this intelligence was soon followed by news of her death.

Rubens arrived at Antwerp in January 1609, intending to return to Italy, but the overtures of the Archduke Albert, and Isabella, then governors of the Netherlands, who appointed him their painter with a salary of 500 florins a-year, induced him to remain in the city of his fathers. In the same year, 1609, he married his first wife Isabella Brandt; and in the course of a couple of years he attained such distinction and success, that he found it necessary to build himself a suitable house, in the street now bearing his name.

It was the bounding of the garden of this house that gave rise to the execution of his masterpiece, the "Descent from the Cross," already mentioned. Rubens had purchased the ground of a company of the Antwerp Civic Guard, the Arquebusiers, and in running his wall had enclosed a portion to which he was not entitled; a dispute was the consequence, and an action at law threatened; but as an eminent lawyer and friend of Rubens had shown him that he was in the wrong, he willingly accepted the proposal from the Company of Arquebusiers, that he should paint a picture for their chapel, and all dispute about the few feet of ground should be forgotten.

A contract for the picture was accordingly signed, the subject, St. Christopher. This was in September 1611, and the magnificent altar-piece in question was finished in 1612, and consecrated in its place in 1614; though the

painter was not paid the whole amount due until 1621, when he received the remainder of the stipulated price of 2400 florins; but the worthy citizens had, in the meanwhile, presented the painter's wife with a pair of gloves, of the value of eight florins ten deniers,—according to the accounts published by Gachet.

Rubens has treated his subject with remarkable skill; making in the principal portions of his work only a general allusion to the idea expressed in the Greek name Christopher—*Christ-bearing* or *carrying*. He was, however, required to paint a picture of St. Christopher, and when he showed his work in the first instance to the Arquebusiers, they expressed some dissatisfaction at the allegorical nature of the piece, and the necessity of addressing their patron before such emblems, but they were completely satisfied when Rubens closed the two folding wings and showed the figure of the Saint himself, with the Hermit and the Owl on the outer side.

The idea of *Christ-bearing* is thoroughly expressed in each of the three more important compositions: in the "Visitation of the Virgin to Elizabeth," in the "Presentation in the Temple," in which he is held in the arms of St. Simeon, and in the "Deposition," in which he is supported in the arms of St. John, Joseph of Arimathea, and Mary Magdalen.*

It is this centre panel—the actual taking down from the cross—which has acquired its great celebrity for the picture. In the arrangement itself, there is nothing new; the treatment of the same subject by Daniele da Volterra in the fresco of San Luigi dei Francesi, at Rome, is in many respects very similar to that of Rubens. Both are equally dramatic, but there is more ease in the work of the Fleming, which also displays more composure and dignity, and a

* The London Royal Academy of Arts possesses copies of these three subjects.

greater richness of colour; and it would, doubtless, by most persons, be felt to be a more pleasing composition. The picture, perhaps, strictly belongs to the sensuous school of art; it is simply five men and three women engaged in taking down the dead body from the cross: two men finely foreshortened, hanging over the top of the cross, one holding the sheet in his mouth, are among the most prominent figures; St. John also supporting the body below is more remarkable for his robust character and vigorous attitude, than for any expression of sentiment. The body itself is robust though dead, and everything is picturesque and magnificent. The work has been long popular in this country, from the well-known remarks of Sir Joshua Reynolds, in his notes of a Tour in Flanders and Holland, who also notices its then bad condition:—"It is mortifying to see to what degree it has suffered by cleaning and mending: that brilliant effect, which it undoubtedly once had, is lost in a mist of varnish which appears to be chilled or mildewed. The Christ is in many places retouched, so as to be visible at a distance; the St. John's head repainted. . . . The greatest peculiarity of this composition is the contrivance of the white sheet, on which the body of Jesus lies . . . none but great colourists can venture to paint pure white linen near flesh; but such know the advantage of it, . . . and certainly no person knew so well as Rubens how to use it. . . . The Christ I consider as one of the finest figures that ever was invented; it is most correctly drawn, and I apprehend in an attitude of the utmost difficulty to execute. The hanging of the head on his shoulder, and the falling of the body on one side, gives such an appearance of the heaviness of death, that nothing can exceed it."

The picture, of which there is a fine print by Lucas Vorsterman, engraved in 1620, under the painter's inspection, was painted when Rubens was only five-and-thirty years of

age, and before he had adopted that extraordinary dashing and florid style which now peculiarly distinguishes him; and also before the very great demand for his works made it necessary for him to trust the greater part of their execution to his scholars. At the same time that this picture displays the real magnificence of treatment of his later pictures, it exhibits all the excellence of execution of the more careful works of his earlier career. Some of the portraits which he painted during his long sojourn in Italy, are finished with the utmost care; and all his works show that it was only gradually that Rubens acquired his unrivalled skill and mastery of execution. For he was, again in the words of Sir Joshua, "perhaps the greatest master in the mechanical part of the art, the best workman with his tools, that ever exercised a pencil. This power enabled him to represent whatever he undertook better than any other painter. His animals, particularly lions and horses, are so admirable, that it may be said they were never properly represented but by him. His portraits rank with the best works of the painters who have made that branch of the art the sole business of their lives; the same may be said of his landscapes."

Rubens' fame had shortly after the completion of this work attained its utmost height; he was invited to France, by Maria de' Medici, to decorate her palace of the Luxembourg at Paris, for which he executed a very celebrated series of twenty-one pictures, now in the Louvre. The original sketches were all completed in 1622, and the pictures by 1625; many of the sketches are in the gallery of Munich. As an illustration of Rubens' extraordinary activity, in the same year that he undertook the Medici series, commemorating the marriage of Maria de' Medici and Henry IV. of France, he accepted a commission to paint

thirty-nine pictures for the Jesuits of Antwerp; these last were destroyed by fire in 1718.

In 1626 he had the misfortune to lose his wife, and he took a tour in Holland in that year to divert him in some measure from brooding over his loss. In 1628 he was sent by the Infanta Isabella, then the widow of the Archduke Albert, on a diplomatic mission to Philip IV. of Spain, in order to negotiate a peace between Spain and England; and in the following year, in 1629, he visited England on the same mission, in which he was in both cases completely successful. Peace was signed December 17, 1629. While in England, in 1630, he was knighted by Charles I.,—a rank confirmed to him by Isabella in the Low Countries; he had received also honorary titles from the King of Spain. On both these visits he painted many portraits, and it was during sittings for this purpose that he explained to Charles I. the views of the Spanish monarch.

After his return home, at the close of 1630, Rubens married his second wife, Helen Fourment, a niece of his first wife's and a beautiful girl, only sixteen years of age; by this marriage he had five children. Rubens' income at this time was about 3000*l.* sterling a-year; he lived, though comparatively retired, latterly in great magnificence, and probably in great luxury, for he became at the close of his life a martyr to the gout. He died after an almost unrivalled career of success, on May 30, 1640, possessed of immense wealth; and he was buried with extraordinary pomp in the church of St. Jacques, in which his widow raised a chapel to his memory. It still contains the celebrated family altar-piece, in which Rubens has introduced the Holy Family, St. Bonaventura adoring the infant Christ, St. George and the Dragon, St. Jerome, &c., and a choir of angels; the figures representing portraits of

Rubens and his whole family, that of St. Jerome representing his father, and that of St. George himself. The painter's epitaph was written by his intimate friend, Gaspar Gevarts, commonly called Gevartius, of whom there is an admirable portrait in the National Gallery by Rubens himself, though it is commonly attributed to Vandyck. Gevarts terms him the Apelles of his century and of all ages, and notices his missions to Spain and England and their successful result.

Rubens was possessed of large collections of works of art, which in his last will he ordered to be sold either by public auction or by private sale; and they were sold at a valuation in lots. His collections consisted of pictures, statues, medals, and other curiosities; the portraits of himself and wives were reserved for his children, as well as his own and other drawings for a son who might become a painter, or, such case failing, for a daughter who might marry a celebrated painter; and, in this case failing also, they were to be sold as the other effects.

Regarded as a private gallery, Rubens' collection of pictures was most remarkable. Including ninety-four of his own, it numbered 314 pictures. He showed his partiality for the Venetians. He possessed ten works by Titian, and twenty-one of his own copies after that master; six by Paul Veronese, and six by Tintoretto. An original English catalogue of the collection was privately printed some years ago by Mr. Dawson Turner. These pictures alone sold for 25,000*l.* sterling, and some of the most valuable had been reserved by Rubens' widow, who eventually sold the "Diana at her Bath" to the Duke de Richelieu for 3000 Spanish dollars, then an enormous price. "The Three Graces," another of the reserved pictures, came afterwards into the possession of Charles I.

His widow, still young at Rubens' decease, was after-

wards married to the Baron J. B. Broecheven, a Flemish nobleman in the Spanish service in the Netherlands.

Of all the numerous works of Rubens—and they are counted by thousands—"The Descent from the Cross," here described, is generally considered his master-piece. In the National Gallery are also some of his best pictures; there are few galleries in which he can be better studied or appreciated, though he is, of course, seen to much greater advantage at Antwerp. But, perhaps, the most complete view of his great powers is given by the two apartments in the Pinacothek at Munich, which contain in close proximity ninety-five of his works, and among which are several that are accounted master-pieces. In the National Gallery is a view of his own country-house, the Château de Stein, in which, while at home, he spent the greater part of the year; it is near Mechlin: the winter months he passed in his house at Antwerp.

Rubens established a new epoch of painting in the Low Countries, and for a whole generation the Flemish painters were simple imitators of his vigorous and gorgeous style; remarkable for its brilliancy of colour, freedom of handling, but heaviness of form: of these imitators his own immediate scholars were naturally the most successful. The most celebrated are Vandyck, Van Diepenbeck, Van Hoeck, Van Thulden, Segers, Jordaens, Snyders, Erasmus Quellinus, Van Egmont, &c.

Rubens etched a few plates himself, and there are altogether about 1200 prints after his works. The "Descent from the Cross" has been often engraved, and in various methods. After the plate of Vorsterman, already mentioned, the best are those by Pigeot, Earlom, Valentine Green, and Claessens. There are also several recent lithographs of it.

R. N. W.

PARABLES.

THE GUIDE.

A PARTY of travellers to a great city had a map of the way, but, distrusting it, resolved to take a guide. The road was confessedly difficult and intricate. Several guides offered themselves, who modestly said that they had taken great pains to understand the matter thoroughly, and would do their best to bring them thither safely, offering to show them by the map, as they went along, how the road lay. But these were all thrust aside by one swaggering fellow, who declared that he was an *infallible guide*, and could not possibly mistake the path by day or night. The travellers took him at his word, and “congratulated each other” on getting a man whom they could trust entirely. But, after a while, some of them thought that the road along which he led them had a very suspicious appearance; and on looking at the map, they found that they were on ground which was there laid down as *dangerous*. Thereupon they ventured to remonstrate, but the guide immediately knocked them down; and, turning to the rest, assured them that the things marked on the map as mountains were rivers, and the rocks marshes, and the marshes firm ground, &c.; in short, that they could not understand the map: and, so saying, he put the map in his pocket, and bade them trust to him to guide them according to its *true meaning*. They did so, and “both fell into the ditch.”

True it is that in *all* questions where there is a right and a wrong, several different parties cannot be *all* right. When all are forced into agreement or outward submission, what they submit to *may* conceivably be right.—But suppose it is not? Then *all* are in the wrong; and truth and right have no chance at all, to the end of time.

THE CRAZY BRIDGE.

Some years ago, there was a bridge at Bath in so crazy a condition, that cautious persons chose rather to make a long circuit than run the risk of crossing it. One day, however, a very nervous lady, hurrying home to dress for the evening, came suddenly upon the spot without, till that moment, remembering the danger. The sight of the bridge reminded her of its ruinous state, just as she was about to set her foot upon it. But what was she to do? If she went on, the frail arch might give way under her; to go round would be fatiguing, and attended with much loss of time. She stood for some minutes trembling in anxious hesitation; but at last a lucky thought occurred to her—she called for a sedan-chair, and was *carried over* in that conveyance!

You may laugh, perhaps, at this good lady's odd expedient for escaping danger by shutting out the view of it. But is not something of the same kind happening around you every day? Those people, who are alarmed and perplexed at the danger of having to judge for themselves in religious matters, think to escape that danger by choosing to take some guide as an infallible one, and believe or disbelieve as he bids them. What is this but crossing the crazy bridge in a sedan-chair? In determining to believe whatever their Guide affirms, they are in reality choosing to make every single exercise of faith which follows that original determination; and they are choosing to believe him infallible into the bargain. There are at least as many chances of error as before against every single article of faith in the creed which they adopt upon their guide's authority; and there are also additional chances against that authority itself. Thus, in order to get over more safely, they put not only their own weight, but that of the sedan-chair also, upon the tottering arch.

THE LIGHTHOUSE.

A ship was about to sail for a certain harbour, without the captain, who had been usually the commander, but who was then called to serve elsewhere. He came on board to take leave, and to warn the officers and others of the dangerous rocks and shoals which, to his knowledge, beset the entrance; exhorting them to keep a good look-out, and also to inquire carefully into the character of any *pilot* who might offer his services; as some, he was certain, were in league with *wreckers*, and would purposely steer the ship on rocks, that these wretches might plunder the wreck. And if we were told, that all this time there was, *to his knowledge*, a lighthouse erected there as a sure landmark, and a ship *could* not go wrong that did but steer straight for that; should we not at once exclaim that, since *he said not a word of this*, he must be either a fool or a knave? And, on being assured that he was an eminently wise and good man, and thoroughly well-informed, we should say,—“Then this story of the lighthouse must be a fiction.”

And now look at Paul's farewell (Acts, xx. 29–31) to the elders at Miletus. We find him warning them that even from the midst of their own body—“of their own selves will arise men teaching a perverted gospel to draw away the disciples after them.”

Now, if there *had* been provided by the Most High any such safeguard as we have alluded to, if Paul had known of any order of men, any prelate, any particular church, or general council, designed by Providence as an infallible guide, and a sure remedy against errors and corruptions, would he not have been sure, on such an occasion as this, to have given notice of it to his hearers? If, when he foresaw a perilous navigation for the vessel of the Church, he had known of a safe port, just at hand, and readily accessible, is it credible that he would have never alluded

to it, but have left them exposed to the storms? Would he have been in that case "pure," as he declares he was, "from the blood of all men?" Can any one seriously think, that against the dangers which he had been warning them of, and weeping over, for three years, he knew of a complete safeguard, and yet was so wanting in his duty, so careless of their well-being, as never to make the slightest mention of anything of the kind? To suppose this would be to suppose him destitute not only of all faithfulness in his high office, but of common prudence and rationality.

And yet if any such provision really had been made by the Author of our faith, it is utterly inconceivable that the Apostle Paul should have been—and that too on such an occasion as this—left in utter ignorance of its existence. Whatever may be the precise meaning of our Lord's promise, "Lo, I am with you always, even unto the end of the world," it is at least perfectly clear what it could *not* mean: it could not relate to something either unknown to Paul, or kept back by him from his hearers. All that he knew, and that it was for their benefit to learn, he had, as he solemnly declares, taught to them; and this was no less, he assures them, than "the whole counsel and design of God." "I take you to record this day that I am pure from the blood of all men. For I have not shunned to declare unto you all the counsel of God. Take heed therefore unto yourselves, and to all the flock, over the which the Holy Ghost hath made you overseers, to feed the church of God, which He hath purchased with His own blood. For I know this, that after my departing shall grievous wolves enter in among you, not sparing the flock. Also of your own selves shall men arise, speaking perverse things, to draw away disciples after them. Therefore watch, and remember, that by the space of three years I ceased not to warn every one night and day with tears."

R. W.

TIMES OF REFRESHING.

CHAP. II.

CHURCH-HISTORY, for about a thousand years after the age of the Apostles, is strangely barren. At least it is not fruitful in those events and scenes which (apart altogether from miracles) give such a super-human aspect to Apostolic annals, and which show that the work then done was done by no earthly workman ; that the calling out of the Church was directly the result of almighty energy doing battle with all the elements of evil here below ; nay, that the Church itself was in very deed the creation of God,—the first forth-putting of the resurrection-power of Him who had taken His place of glory at the Father's right hand.

Not that Church-history has not its folios to speak of. Eusebius leading the way, there were not a few, age after age, who wrote of their own or of past times. But their works are one-sided. They are histories written by the dominant party, with but a small amount of fairness towards those who differed. By this time we ought to have learned how little trust can be given to the statements of the Fathers. We have learned to take their *opinions* at what they are worth ; we have yet to learn to take their *narratives* at the same. They have taken singular care to say as much good of themselves, and as much evil of their "adversaries," as possible. Hitherto we have believed them, both in the good and in the evil. The truth is dawning upon many that they are to be trusted in neither, and that Church-history will require to be re-written from the very year in which the inspired record ends. Niebuhr has satisfied most men that in ancient civil history the Romans have hitherto

“had it all their own way;” by which means they have succeeded in “writing up” Rome and “writing down” Carthage most successfully, but most unfairly. We need an ecclesiastical Niebuhr to show that hitherto the Fathers have had it “all their own way;” so that we hardly know anything about the early ages save from such pens as that of Eusebius, who wanted to build up or prop up the hierarchy; or that of Ambrose, who could manufacture pious frauds at pleasure; or that of Chrysostom, who could build his treatise on the Priesthood on a falsehood; or that of Jerome, who had as little scruple in “lying away” the reputation of an adversary as in dipping his pen into his Bethlehem ink-horn to write to his beloved Marcella.

It was not easy in these ages to write or to “publish.” That was reserved for those who had the power and the means and the patronage. They who had none of these must be content to suffer wrongs unredressed and slander unrepplied to; nay, to have their opinions misrepresented, their characters calumniated, and their names handed down to other times as the promoters of schism or the champions of heresy, when they were but holding fast the earlier faith, and, like Huss or Wicliff or Savonarola, protesting against the assumptions of ecclesiastical lordliness or the inroads of vile idolatry.

The “Fathers” are only the representatives of the dominant ecclesiasticism of the past; and we should as soon take our views of the state of religion in Europe during the last three centuries from Wiseman, or Lingard, or Butler, or Bossuet, as we should gather the state of the Church of Christ in successive times from Bernard, or Cyril, or Cyprian, or Jerome, or even Augustine himself.

These men, and such as they, had the ear of the world, and they made their own use of it. They were clever men, and they made their voice to be heard,—till it was heard

alone,—ringing through East and West,—echoing down the ages,—drowning or silencing every opposing whisper.

Hence we believe that a true Church-history of these times,—such as that in the Acts of the Apostles,—has become almost impossible. "Truth fell in the street" beneath unscrupulous daggers, and in the place where it fell it was buried. There was no man to build its monument. There might be not a few to make lamentation over the fallen and to weep in secret over a desolate Church; but who could write the story of the reviled saints or the bleeding members of Christ's body? Woe be to the man who dared to try it! Some Jerome would arise to browbeat or to slander him, till the good man's fair name was gone, and his testimony for the truth set aside as heresy or foolishness. Buried beneath the obloquy or the contemptuous neglect of men whom a corrupt apostasy has taught us to call "Fathers," the saints of successive generations have died not only unhonoured but unnamed; their story has perished from the earth not to be told till the day of the resurrection of the just.

It is here that the real flaw of all Church-histories lies. They have assumed the "Fathers" as the representatives of the Church of Christ. To write the lives of the Fathers has been reckoned synonymous with writing the history of the Church of Christ! It is strange how little the eyes of the Reformers were opened to this fallacy. They speak of the Fathers very much as Romanists had done before them. They cite their teachings, not indeed as authority but as corroboration; and it is somewhat remarkable that of all the Protestant "Confessions of Faith" the only one that does not quote the Fathers is that of Scotland. It thoroughly "ignores" them. The Madgeburg Centuriators, in their thirteen folios of indiscriminating toil, have drawn all together, good or bad. Venema, in his seven elaborate quartos, little known, but of

high value, has given us an excellent history, but there is the deficiency above noted. Mosheim, in his learned volumes, has greatly missed the mark. So has Milner,—though in another direction;—for his charity has made him set down almost every one as a Christian who could speak or write in a pious strain.* Neander writes with more discrimination and Christian sagacity,—refusing to endorse the accusations of the Fathers against all the heretics hunted down by them; but still too lenient towards the persecutors. Schaff's more recent work has an excellent tone in some respects, but what confidence can one repose in a work which, while protesting against Popery, yet makes that system a necessary stage of Christian development?

The Fathers of the first eight or nine centuries had the whole field to themselves, and all that we know of their opponents is from the page of contemptuous controversy. There are, no doubt, glimpses of light even in the midst of the darkness. But these are few. Yet they increase about the tenth century and onwards. In earlier times the Fathers had enjoyed the unlimited control of history. They had the whole market to themselves. No man could buy or sell who had not their mark. The *suppressio veri* was almost complete for a time. But some ages before the Reformation Patristic censorship was on the wane. Men began to speak and write more boldly,—or rather, we should say, men began to hear and to read what was spoken and written more boldly. Church-history then begins to be what it ought always to have been,—the history of the redeemed

* Let modern smartness,—that admits nothing to be learned save what comes from Germany, or veils itself in a German mist,—say what it pleases, Milner's is really a learned Church-history, if learning be the reading and searching for one's self of every book and document that can subserve one's end. With many, spirituality and learning are deemed incompatible. Thus Joseph Milner has been made to pay the penalty of his piety. Yet he was a scholar and a man of power.

from among men. After the silence of a thousand years we begin to listen to narratives which remind us of the "Acts of the Apostles."

In few of the Fathers do we read aught of such times of refreshing as when the Lord added daily to the Church of such as should be saved, or when three thousand believed and rejoiced. The conversion of souls seems hardly to occupy their thoughts. Even Augustine,—immeasurably their best and greatest,—does not notice this. The building up of a Christian externalism, by sacraments, by priesthood, by what they called the "Catholic faith," is their chief aim. With them this is progress,—this is the right standing of the Church.

Yet we cannot read the story of the ten persecutions, or the touching narrative of the Lyonnese martyrdoms, or of the Numidian persecutions, without feeling that the Spirit of God was in these Churches. The shower was still descending "like rain upon the mown grass," when Tertullian affirmed, "The oftener we are mowed down the thicker we spring up;" and when Origen wrote, "The number of the Christians God has caused continually to increase, and some addition is made to it every day." But there is great difficulty in tracing out anything special regarding the origin of the different Churches, or the way in which the word of the Lord grew and multiplied in each of them.

Our strong impression is that many of the controversies that arose in the Church from the second century and onwards were occasioned by the efforts of good men to rectify the rapidly deteriorating state of religion; and that those whom Church-historians, blindly led by patristic authority, have been in the habit of calling heretics and schismatics, were in reality men quickened to a sense of surrounding evil, and who, though sometimes erring, were yet much nearer the truth than those who sought to crush them. We confess

freely that we have a great desire to know more of these men, to get some insight into their real character and doctrine. It seems likely that they were the head of these small bands of Christians, who, taught of God, have got beyond their contemporaries, though, like the Port-Royalists of France, retaining many of the evils of their education about them. In all ages these men have risen up; and as they did so have been greeted by the churchism of the day with the names of Cathari, or Puritans, or Methodists.

In none of the Fathers do we find "the glad tidings of great joy" which meet us in every page of the inspired histories. Nay, the opposition to the Gospel had, in the third century, risen to such a height, that to maintain it was to ensure persecution at the hands of the Church. It is worse than vain to seek for the living members of Christ among those who ruled in the Church or wrote to uphold her superstitions: we must look for them among the persecuted. We do not say that every man who was assailed as a heretic in these days was truly a man of God; but this we say,—wherever you find such attacks, look well; it is likely that it was the man's honest love of truth, and his resistance to abounding error, that roused the anger of those builders of the Western Babel.

We should greatly like to know more of Novatian in the third century, whose name has been sent down to us by Rome as equivalent to schism and self-will. Neander, chiming in with old usage, sets down his procedure as a "schism." Yet he speaks of him as the "quiet, loving ascetic and divine," and as hurried on against his natural inclination "to contend for what he conceived to be the purity of the Church." He rises up before us like some old prophet, solemnly denouncing the hideous corruptions of the Church, yet unable with his small band to make head against that ecclesiastical tyranny which had planted its

throne in Italy. "The Catholic Church," says he, "transmitted by the succession of bishops, ceases to be truly Catholic, as soon as it becomes stained and desecrated, through the fellowship of unworthy men." One feels that it is not going too far to affirm that whatever of heavenly vitality there was in the Church in these days was among the "schismatic" Novatianists. Rome's policy was to confound the distinction between the visible and the invisible Church, and so to rule without Christ, and without the Spirit, and without the Gospel. Novatian and his brave few, taught out of the Book of God and not by man's traditions, protested against such confusion, and maintained the cause of the living against the dead. They were suppressed. The attempt to reform failed. The spirit was quenched, and Rome quietly reseated itself in its old paganism, under a Christian nomenclature, having at length succeeded in throwing off as an incubus the last relics, if not of Apostolic *faith*, at least of Apostolic *life*.

We have a great desire to know the real opinions of the Priscillianists, to whom the worthless Damasus of Rome, and the unscrupulous Ambrose of Milan, denied a hearing, and who suffered sorely for their doctrines in an age when to be dissatisfied with the regnant ritualism of high places was to be a heretic. They might be wrong ; but their persecutors were more so.

We have a still greater desire to know more of Apollinaris in the fourth century. He was evidently a man that loved his Bible, and sought the mind of God in it. But he clung to it too closely for his own safety and honour in the Church. He was hated, reviled, misrepresented. At the worst, even according to the showing of his enemies, it was jealousy respecting encroachments on the Supreme Godhead of his Lord, that led to some expressions on which his adversaries founded the charge of heresy. He was the poet

of the Church and the scholar of the age,—yet, withal, a man of godly life and simple faith. But no excellency could save him. He had offended the priesthood; his name must be branded; even his hymns must perish, so that posterity may know him only as a heretic. Athanasius and Basil did the work of hunting him down.

We want to know more of Jovinian too. He was abused by Ambrose and by Jerome; condemned by the Roman Church, and banished to the lonely rock of Boa, there to expiate his heresies by death. Yet, what were his heresies? His chief one was, that “the man who lived according to Christ’s Gospel in the circle of domestic and social life was a better man than the solitary ascetic!” He wanted men to live as Christ lived, and as His Apostles lived. For this cause it was that Jerome poured out his wicked slanders against him, and that the dominant Church condemned him. Yet who can doubt that it was for the truth that he contended and died?

God did not leave Himself without witnesses in these ages. The cloud was still spreading out its skirts over thee arth. Drops were falling in some places, showers in others. The word of God was not bound. The glad tidings went on their way from land to land. The Spirit of God carried salvation to thousands. Would that we had a fuller record of His work. Would that some one would at least glean out the true from the false; and that we might have a history, however brief, of the *living* as well as of the dead,—a record not of those whom Rome has canonised, but of those whom God has written in the Lamb’s Book of Life.

H. B.

THE LION.

(*Felis Leo.*)

THIS redoubtable animal is not only at the head of the formidable order *Carnivora*, but has, by common consent, been regarded from the earliest ages as the king of the forest. Its appearance is familiar, especially in our land, where it has for many ages been the national emblem, with its figure emblazoned on our standards, moulded on our coins, and stamped on our public documents. From living specimens till a late period kept as an appendage of royalty, and from its frequent occurrence in menageries and zoological gardens, almost every child knows that the lion is a cat-like quadruped of a tawny yellow colour, and that there is no foundation for its being figured in all the colours of the rainbow on the signs of inns and on the shields of ancient families, except in the fancy of the painter or the secret meaning of the herald.

The lion has acquired its distinguished position, not only from its stately bearing, its great strength, and its tremendous powers of destruction, but from ideas popularly held, that, in this monarch of beasts, we have the portraiture of "might unmingled with ferocity, of courage undebased by guile, of dignity tempered with grace, and ennobled by generosity." It is in vain that nearly all travellers record that the royal beast is as treacherous as any cat, and that except when roused by hunger or brought to bay he sneaks away like a coward. "He may possess," says Mr. Methuen,* "the most noble qualities of any of the feline race, but it is a race distinguished by ferocity, craft, revenge, impatience, not by generosity." "There is something truly regal and magni-

* Life in the Wilderness, p. 82.

ficent in his port, his flashing eye, and shaggy mane, but '*fronti nulla fides.*'" The traveller has often to record that when suddenly roused the lion runs off as timidly as a buck; and that he is a stealthy, cunning brute, who never attacks unless he has the advantage, and, relying on his great strength, feels sure of the victory.

The lion is admirably organised and armed for the purposes of his life; and possesses in the large canine teeth and sharply-pointed molars the most suitable dentition for the laceration of animal food. His very tongue is rough with elevated papillæ, the points of which are directed backwards, so that with this organ he can remove every particle of muscle from the bones of his victim. So rough is the tongue, that the lick of a lion has been known to abrade the skin of the human hand. The claws, which are five on the fore-feet and four on the hind, are long, and hard, and hooked; they are retractile, within a sheath, which is enclosed in the skin which covers the end of the paws. The muscles which move and hold back these claws are very complicated, and afford a beautiful and very evident instance of adaptive design; for in no other way could these useful organs have the sharpness of their edge and the fineness of their point preserved.

The male lion is distinguished in his adult state by a shaggy mane, which contributes much to his nobleness of look. The mane varies in colour according to his age. Mr. Cumming says* that he attains it in his third year; at first it is of a yellowish colour; in the prime of life it is blackest; and when the monarch has numbered many years, but is still in the full enjoyment of his power, it assumes a yellowish grey colour, a kind of mixture as it were of pepper and salt. These old lions are ever deemed the most dangerous. The female has no trace of a mane, and is

* Hunter's Life in S. Africa, i. p. 195.

covered with a short, thick, glossy coat of tawny hair. The tawny colour of the lion's skin is a great protection to him, rendering him perfectly invisible in the dark, and in the day-time, from its sandy or stone colour, concealing him well from observation and distinction. Mr. Cumming has often heard lions lapping the water loudly under his very nose without being able to make out so much as the outline of their forms. This traveller observed, too, the unwillingness of lions to visit fountains when the moon was bright. If that luminary rises early, the lions deferred drinking till a very late hour in the morning ; while, if it rose late, they drank at a very early hour in the night. The lion is strictly nocturnal in its habits ; during the day his usual place of concealment is some low bushy tree or wide-spreading bush, either in the forest or on the mountain-side. He also frequents jungly spots, where there are lofty reeds, or fields of long, rank, yellow grass, among which he lies concealed during the heat and glare of the tropical sun.

The cubs for some time after their birth are obscurely banded with black ; and on the head and limbs there are several spots of a similar darkish hue, so that the young by their marking show some affinity both to the tiger and to the leopard, animals closely allied to the lion and belonging to the same natural family.

The lion, though a pigmy compared with the giraffe, can dash this lofty animal to the ground, and in a short time is able to overcome him. He is a constant attendant on the great herds of buffaloes which wander among the vast forests of the interior of Africa ; and so long as his teeth are uninjured, a full-grown lion generally proves a match for an old bull-buffalo, an animal which much exceeds in size and strength the largest breed of English cattle. He also preys on the numerous species of antelope, watching for them as they come to drink. It is but very seldom that the lion

ventures to attack man, though it has been said, that when once he has tasted human blood he acquires a special relish for it. The degraded Bushmen sometimes fall a prey to his ferocity, and they are said occasionally to expose the aged and the infirm, so that they fall into his clutches. The skin of the lion serves as a mantle and a bed to the chiefs of many of the African tribes, while his flesh is occasionally eaten by them. Dr. Shaw has recorded that in North Africa the flesh of the lion was held in great esteem, and that it had no small affinity with veal, resembling it both in colour, taste, and flavour. Mr. Darwin* when in South America tried the flesh of the puma, or South American lion, and found it very white and remarkably like veal in taste, so that he thinks Dr. Shaw's statement well worthy of credit.

Travellers have remarked that,† “contrary to prevailing notions, there is nothing very grand or loud in this animal's voice while prowling at night.” Its growl consists of a thick, suppressed, panting roar, expressive of great impatience. Mr. Methuen well observes that were this “royal beast” to be very vociferous, he would have but small chance of filling his stomach. When lions approach very near their purr may be distinguished, and it is impossible to describe the sensations of awe and fear produced by this sound breaking the silence of night in a dreary wilderness. Oxen and horses tremble with fright, and seem perfectly aware of the dangerous proximity of this dread beast. The poet Campbell, who visited North Africa, refers to the strangeness of the delight of the imagination in objects linked with danger, death, and pain.

“ And my heart beat with joy when first I heard
A lion's roar come down the Libyan wind,
Across yon long, wide, lonely inland lake.”

* Researches during the Voyage of the Beagle, p. 135.

† Methuen's “Life in the Wilderness,” p. 111.

Dr. Burchell, in whose "African Travels" are many particulars of the lion, tells us that on stormy nights this beast is always most active. It would seem that most animals are thrown into confusion by thunder and lightning, and on such nights the lion does not fail to take every advantage of the war of the elements. He can then spring with greater certainty on an antelope or quagga, as their powers of escape seem to be paralysed by the storm. We may mention that the lion seems to be particularly attached to the flesh of the quagga, so that where travellers fall in with great numbers of these fine species of the horse family, the close neighbourhood of the lion may be safely inferred.

Mr. Gordon Cumming's work abounds with anecdotes of this beast, in encountering which the adventurous author was generally very successful. On one occasion, by laying down a large antelope as a bait, a magnificent old black-maned lion was attracted to the carcass, and having dragged the weighty body for some distance, a shot from the steady hand of our African Nimrod brought down the poacher. Mr. Cumming thus enthusiastically describes his victim, which was killed by a ball traversing the length and breadth of his body: "I lighted a fire, and gazed with delight upon his lovely mane, his massive arms, his sharp yellow nails, his hard and terrible head, his immense and powerful teeth, his perfect beauty and symmetry throughout; and I felt that I had won the noblest prize that this wide world could yield to a sportsman." It must be a noble sight to see, as our traveller did, six large lions, attended by those valets of leonine majesty, a group of hyenas and a still larger band of jackals, feasting at once on some recently-killed carcasses of the rhinoceros. Lions do not refuse to feast upon animals not killed by themselves. Mr. Cumming repeatedly found lions of all ages feasting on game, quadrupeds which he had shot; and we know with what gusto the lions in the Regent's

Park devour their portion of beef at four o'clock, on every "lawful" afternoon.

The father of the young man who accompanied Mr. Steedman in his travels in Africa was celebrated for his exploits in lion-hunting. On one occasion the son came unexpectedly on a lion, and fired, but missed his aim; the infuriated beast rushed on him and knocked him down. The father witnessed the disaster from a distance, ran to his son's assistance, and levelling his piece, fired at the beast as it lay growling over its victim, whom it seemed to press closer to the earth, as if fearful of losing its prey. The ball went through the animal's head, and caused it to roll over; after a few struggles it expired close to the body of the young man, who, to the inexpressible joy of his parent, had sustained no serious injury, although some time elapsed before he recovered from the shock he had received. On Mr. Steedman's remarking to the father that it was a surprising deliverance, "Yes!" he emphatically replied, "God was there!"*

Lions were at one time far from scarce in the Holy Land, as we learn from several passages of Scripture. When passing through the vineyards of Timnath, "a young lion roared against" Samson, and was killed by him. (Judges, xiv. 5, 6.) David was well acquainted with this king of beasts (1 Sam. xvii. 34), and not unfrequently in the Psalms alludes to it (Ps. vii. 17-22), especially referring to its nocturnal habits in Psalm civ. 20-22. "Thou makest darkness, and it is night; wherein all the beasts of the forest do creep forth. The young lions roar after their prey, and seek their meat from God. The sun ariseth, they gather themselves together, and lay them down in their dens." David had, doubtless, become familiar with their habits when feeding his father's flock, and when a wanderer

* Steedman's "Wanderings and Adventures," i. 178.

fleeing from the face of Saul. The disobedient prophet was slain by a lion, "which met him by the way." (1 Kings, xiii. 24.) In the neighbourhood of the cities of Samaria, when inhabited by deportations of the King of Assyria, lions abounded (2 Kings, xvii. 25, 26); while Jeremiah, prophesying more than a hundred years after, compares an enemy "to a lion from the swelling of Jordan." (Jer. xlix. 19.) The Jordan in its swellings still lodges sedge and driftwood high up on the branches of overhanging trees, and overflows the lower plain,* but the lion seems to have been long since destroyed from its jungles. De Sauley, however, who visited the Dead Sea in 1850 and 1851, remarked on the sandy soil some recent and very distinct marks of an animal much larger than the panther; and felt convinced that, although he did not see the king of beasts, the lion had not yet entirely disappeared from the deserts of Judea.†

The lion is often alluded to in the Bible, especially by the prophets, who derive many comparisons from it. Among these may be particularised the references of Nahum to its habits (Nahum, ii. 11, 12), evidently derived from close observation of its nature on the banks of the Euphrates. In these regions this royal beast has been long a formidable inhabitant. Nimrod, the "mighty hunter before the Lord," pursued there this grisly tyrant. In the British Museum some of the most interesting slabs, deposited by Dr. Layard, contain most vivid representations of the pursuit of the lion by some descendant of Nimrod. He is accompanied by his courtiers, who drive the wounded animals to his chariot to receive their death-stroke from the monarch's hand. One of the lions is in a most infuriated state, and lashes about its tail, at the end of which is a very conspicuous prickles, with which the ancients believed that the beast roused its

* Lynch's "Narrative of United States Expedition," p. 132.

† Journey round the Dead Sea, i. 248

latent ire. In many of the other sculptures from Assyria the lion is represented, and it seems to have formed one of the most frequent and expressive emblems employed in that most ancient kingdom. A figure with the body and limbs of a lion, the head of a man, and the wings of an eagle, and similar to one of the four beasts of Daniel's vision (Dan. vii. 4), frequently occurs in these sculptures, and seems to be symbolical of strength, wisdom, and swiftness.

Lions are still far from rare on the banks of rivers of Mesopotamia. Dr. Layard frequently saw these animals, and his party almost daily found traces of their footsteps amongst the ruins of Niffer.

When Dr. Layard was at Hillah, a Turkish official there gave him two lions. One of these was nearly of full size, and was well known in the town, for it had been allowed to wander about the bazaars and streets. Many of the shops had no attractions for him, but in the stalls of the butchers he found wherewith to satisfy his hunger, and so without leave asked he quietly took possession of one, and remained till his appetite was satiated. This lion waited also the arrival of the fishermen's large wicker-boats, and in spite of the opposition of the owners, helped himself to a kind of large barbel, for which he appeared to have a decided relish. Dr. Layard remarks, that for these acts of depredation the Pasha was rather to be blamed than the king of beasts, as the former decidedly encouraged a mode of obtaining daily aliment, "which, although of questionable honesty, relieved him from butchers' bills." The lion, when his appetite was gratified, would quietly stretch himself in the sun, and allow the Arab boys to take great liberties with him.* This variety of lion has not the dark shaggy manes of the African breed.

The memory of the escape of a London merchant from

* Nineveh and Babylon, p. 487.

a lion has been kept up annually for upwards of two hundred years. A sermon is preached every year on the 16th of October in the church of St. Catherine Cree, Leadenhall Street, to commemorate the deliverance of Sir John Gayer. This gentleman, who was Lord Mayor in 1643, when returning from a successful voyage, was shipwrecked on the coast of Africa. In his distress he perceived a lion making towards him: he immediately fell on his knees and prayed for deliverance, declaring solemnly, that if the Almighty would please to keep him from the mouth of the lion, he would, on his return to London, evince his gratitude, and endeavour, to the end of his life, to inculcate reliances upon Divine Providence in the worst extremes of human wretchedness. The good Providence of God protected him, for the lion passed without molesting him. He soon after descried a vessel, and reached his native land. Not forgetful of his vow, he hastened to fulfil it, and immediately on his arrival placed the sum of 200*l.* in trust, the interest of which was to be given in bread to the poor of the parish of St. Catherine for ever; he left also twenty shillings to be paid to the minister who should preach a sermon commemorative of his escape on every succeeding 16th of October. The money left, unlike many other somewhat similar bequests, has been strictly applied to the object for which it was designed by the grateful parishioner.*

A. W.

* Dr. Hughson's "London," vol. ii. p. 177.

LIFE, IN ITS INTERMEDIATE FORMS.

No. II.

INSECTA.

WE have now to do with a host of creatures, which, though of minute dimensions, are sufficiently conspicuous in many aspects to have been objects of popular interest in all ages. We find no longer the soft gelatinous bodies, sluggish habits, and indeterminate forms, which have so generally characterised the races through which we have passed ; but active and agile animals, of firm and solid parts, furnished with well-appointed limbs, liberally endowed with organs of sense, in full variety and perfection, and displaying a versatility of instinct, and a measure of intelligence, that would scarcely be surpassed by the noblest of the brute creation. The mailed and powerful Beetle, the soaring Butterfly, the predaceous Dragon-fly, the industrious Bee, the sagacious Ant,—are representatives of the Class of INSECTS.

The unparalleled number of species included in this division, and the consequent abundance and variety which exist in the details of structure and habits, render it difficult to give anything like a popular view of the whole Class within reasonable limits. Probably above 150,000 *species* of Insects exist in the cabinets of European collections ; by which word “species” we mean animals as distinct from each other as the Rat from the Mouse, or the Blackbird from the Thrush ; races of animals, each of which has descended from an original first parent, created distinct and separate at the beginning of the world.

Insects are composed of rings, or annular segments, like the ANNELIDA ; and a caterpillar, which is an immature

butterfly or moth, is much like a worm ; but in the full-grown Insect we see a manifest condensation of form, the segments being generally compacted together, except at two points, where division is very manifest. Thus, if we look at a Wasp, we see that it is distinctly divided into three portions, the head, the trunk (*thorax*), and the body (*abdomen*) ; separated by constrictions so deep as nearly to cut off the mutual connexion of these parts. All perfect or full-grown Insects show the same divisions, though not commonly so strongly marked. The appellations "Insecta," and "Entoma" (whence *entomology*), have been hence given to the Class, these Latin and Greek terms signifying "cut into."

The perfection which is bestowed on the organs of sense in these animals, especially when we consider their minuteness, is calculated to fill us with adoring admiration of the skill of "the Great Workmaster." Take an example from the *eyes*, which are of several kinds, evidently designed for distinct modes of vision, of which we, who have but one sort of eyes, can form no adequate notion. The Bee and many other Insects have on the crown of the head a number, usually three, of simple glassy eyes, set like "bull's-eyes" in a ship's deck ; and besides these a great compound eye on each side, consisting of a multitude of lenses aggregated together upon the same optic nerve. The microscope reveals to us that the compound eye of an Ant contains fifty lenses ; that of a Fly, four thousand ; that of a Dragon-fly, twelve thousand ; that of a Butterfly, seventeen thousand ; and that of a species of *Mordella* (a kind of beetle), the amazing number of twenty-five thousand. Every one of these regular, polished, and many-sided lenses, is the external surface of a distinct eye, furnished with its own iris, and pupil, and a perfect nervous apparatus. It will thus be seen that each hexagonal facet forms a transparent horny lens, immediately

behind which is a layer of pigment diminishing to a point in the centre, where it forms a pupil; that behind this a long six-sided prism, answering to the crystalline and vitreous humours in the human eye, extends, diminishing to its lower extremity, where it rests upon the retina, or net-work expansion of the optic nerve. Some of the minuter details of this exquisite organisation are still matters of conflicting opinion; but these we omit, as our purpose is rather to convey to our readers a general idea of the structure of this complex organ of vision. "This also cometh forth from the Lord of Hosts, which is wonderful in counsel, and excellent in working." (Isa. xxviii. 29).

With scarcely an exception, the animals of the previous Classes are confined to the waters; the density of such a medium being requisite for the support of their soft and feeble bodies. But the solid external investiture of Insects, and their well-jointed limbs, impart to them sufficient firmness and precision of motion to range the earth and air; many species being endowed with organs which enable them to swim, run, or fly at their pleasure. Professor Owen thus eloquently speaks of the various powers of these indefatigable little creatures:—

"Some traverse the surface of the earth with a succession of steps too swift for definition; some by leaps so extraordinary as to have excited the powers of the dynamical calculator from the earliest periods. The waters also have their insect population, some swiftly cleaving the clear element, some gyrating on the surface, while others creep along the bottom. Nor are the activities of the aquatic insect confined to that lower sphere. The *Nepa*, or the *Dytiscus*, at the same time, may possess its organs of creeping, of burrowing, and of flight; thus, like Milton's fiend, it is qualified for different elements, and

‘ ——— Through strait, rough, dense, or rare,
With head, hands, wings, or feet, pursues its way,
And swims, or sinks, or wades, or creeps, or flies.’ ” *

The muscular strength of Insects is immense. We once were surprised by a feat performed by a common Beetle (*Oryctes maimon*) in the United States. We had put the insect, for want of any box at hand, beneath a quart bottle full of milk upon a table, the hollow at the bottom allowing him room to stand upright. Presently, to our surprise, the bottle began slowly to move and glide along the smooth table, propelled by the muscular power of the imprisoned insect, and continued for some time to perambulate the surface, to the astonishment of all who witnessed it. The weight of the bottle and its contents could not have been less than three pounds and a half; while that of the beetle was about half an ounce, so that it readily moved a weight 112 times exceeding its own. A better notion than figures can convey will be obtained of this feat by supposing a lad of fifteen to be imprisoned under the great bell of St. Paul's, which weighs 12,000 lbs., and to move it to and fro upon a smooth pavement by pushing within.

Mr. Newport has given other instances of insect-power equally remarkable. Having once fastened a small kind of *Carabus*, an elegantly formed Ground Beetle, weighing $3\frac{1}{2}$ grains, by a silk thread, to a piece of paper, he laid a weight on the latter. At a distance of ten inches from its load, the insect was able to drag after it, up an inclined plane of twenty-five degrees, very nearly eighty-five grains; but when placed on a plane of five degrees' inclination, it drew after it one hundred and twenty-five grains, exclusive of the friction to be overcome in moving its load, as though a man were to drag up a hill of similar inclination a waggon

* Comp. Anat. i. 213.

weighing two tons and a half, having first taken the wheels off.

According to the same excellent authority, the Stag Beetle (*Lucanus cervus*) has been known to gnaw a hole an inch in diameter through the side of an iron canister in which it was confined, and on which the marks of its jaws were distinctly visible, as proved by Mr. Stephens, who exhibited the canister at one of the meetings of the Entomological Society.

Let us look at the powers of Insects exercised in the act of flying. The House-flies (*Musca domestica*), that wheel and play beneath the ceiling for hours together, ordinarily move at the rate of about five feet per second; but if excited to speed, they can dart along through thirty-five feet in the same brief space of time. Now in this period, as Kirby and Spence observe, "a race-horse could clear only ninety feet, which is at the rate of more than a mile in a minute. Our little fly, in her swiftest flight, will in the same space of time, go more than one-third of a mile. Now compare the immense difference of the size of the two animals (ten millions of the fly would hardly counterpoise one racer), and how wonderful will the velocity of this minute creature appear! Did the fly equal the race-horse in size, and retain its present powers in the ratio of its magnitude, it would traverse the globe with the rapidity of lightning."* Some of the flies that haunt our gardens shoot along so rapidly that the eye cannot follow them in flight.

Nor are these tiny creatures less masters of the arts of running and leaping. De Lisle mentions a fly so minute as almost to be invisible, which ran nearly six inches in a second, and in that space was calculated to have made one thousand and eighty steps? This, according to the calculation of Kirby and Spence, is as if a man whose steps

* Introd. to Entomology.

measured only two feet, should run at the incredible rate of twenty miles in a minute.

Every one has had occasion to observe, not always without an emotion of anger, the leaping powers of the Flea (*Pulex irritans*). A bound of two hundred times its own length is a common feat; as if a man should jump twelve hundred feet, or a quarter of a mile! What a pity that Insects were not allowed to be competitors in the athletic games of old!

With regard to their organisation, all Insects in the mature state are armed with three pairs of legs; which are divided into several parts, as, the hip, the thigh, the shank, and the foot, by distinct hinge-joints: the foot itself (*tarsus*) consists of several jointed pieces, and is usually terminated by two hooks, and often furnished with adhesive pads, or other organs accessory to locomotion. In most of the tribes there are also wings, two pairs in general (but in one extensive Order the hinder pair is obliterated); each of these organs consists of two films of highly elastic membrane, stretched over a frame-work of strong tubes, as the silk of an umbrella is expanded over its ribs. In the Order *Coleoptera* (Beetles) the fore pair are thick, leathery, and opaque, chiefly serving as shields to protect the hind pair in repose; and in some other Orders they are somewhat coriaceous; while in the beautiful *Lepidoptera* (Butterflies), the transparency of both pairs is concealed by a covering of minute feather-like scales, overlapping each other, reflecting various colours, and arranged in a mosaic of inimitable beauty.

The power of these organs, so delicate and filmy in appearance, we have before alluded to, but it may be illustrated by another anecdote. Leeuwenhoek has recorded a remarkable instance, in which he was an eye-witness of the comparative capabilities of the Dragon-fly and the Swallow, as relates to the perfection of their flight. The bird and the insect were both confined in a menagerie about a hun-

dred feet long ; and apparently their powers were fairly tested. The swallow was in full pursuit, but the insect flew with such astonishing velocity, that this bird of rapid flight and ready evolution was unable to overtake and entrap it ; the insect eluding every attempt, and being generally six feet before it.

The organs of the mouth vary much in form and function in different insects. In a Beetle they consist of two pairs of jaws, generally hooked and toothed, working horizontally, and an upper and an under lip, closing the mouth above and below. Each lower jaw bears one or two filaments, consisting of several joints ; and a similar pair is affixed to the lower lip. These filaments are called *palpi*, and are supposed to be highly endowed organs of touch. They greatly resemble the *antennæ*, or horns of many joints, which project from the front of the head ; but these latter are considered to be organs of hearing.

If we look at a Gnat piercing our hand with its blood-sucking tube, or a Butterfly pumping up the nectar of a flower through its spiral tongue, or a Fly dissolving grains of sugar with the fleshy lips of its proboscis, we shall not very readily allow them any analogy with the apparatus of jaws and lips which we have just described. Yet great as is the dissimilarity, it is now established, that all these forms of mouth are but modifications of the same model, adapting it to different functions. The sheath, horny and tubular in the Gnat, soft and muscular in the Fly, is the lower lip ; the piercing lancets in the former are the jaws, which are inconspicuous in the latter. The elegant coiled spire of the Butterfly consists of two tubes, which are the lower jaws, greatly lengthened ; and the labial palpi, stout and hairy, stand up on each side of them : the other essential parts can be detected only by the skill of the anatomist.

Some of the most interesting of the phenomena which

occur in the economy of Insects, are the transformations which they exhibit in their progress of growth; the changes of their form being frequently so great, that it would be impossible, but for the testimony of experience, to avoid the conclusion that the same insect, in infancy, youth, and adult age, belonged to widely distinct and remote orders of existence. We shall hope to enter into some details of this interesting subject in our next paper. P. H. G.

REVIEW OF THE MONTH.

CONSIDERING the numbers whose happiness is involved, the war in China is more important than even the Crimean campaign; and we confess that the latest accounts have caused us much anxiety. Every generous sympathy was with a nation throwing off the yoke of ancient oppression, and, if left to themselves, no one feared for the eventual success of the Chinese people. And although, as will always happen in any popular movement, a few fanatics or intriguers might be mixed up with it, there can be no doubt that the good greatly predominated over the evil. The morality of the insurgent camp has been unprecedented; the Decalogue has been adopted as their ethical code; and to the Holy Scriptures has been assigned a marked supremacy as the class-book of education, and the text-book of public instruction. Any one who knows the present state of China and the history of the Manchoo dynasty, so corrupt, oppressive, and exclusive, must join Bishop Smith and Dr. Medhurst in wishing success to the Tae-ping rebellion. But there is too much reason to fear that the resurrection of

China will be arrested by European intervention. The insurgents are iconoclasts, and, it is said, at the instigation of the Jesuits, who regard the movement as a sort of Chinese Protestantism, the French authorities at Shanghai have already taken the side of the Imperialists. On the other hand, the prohibition of opium among the insurgents has led our British traders to fear that their craft is in danger, and they deprecate a revolution which would cut off the millions of dollars now paid for this drug. The British plenipotentiary, Sir John Bowring, has always looked with indifference, if not hostility, on Christian missions; and it is now confidently stated that, along with the representatives of France and America, he has resolved to take advantage of the present weakness of the Manchoo dynasty to extort the free navigation of the Yang-tse-kiang, offering in return the united resources of the three powers to put down the Tae-ping movement. Coming from a quarter so well informed as the "Friend of India," we can scarcely doubt the correctness of the statement; but that Protestant Christendom should be committed to a crusade on the rising liberties of China, and that British cannon should be employed in forcing on a reluctant people a cruel Tartar despotism, are results at which the British people may well be indignant; but they are results too likely to be realised if Britain is still to be represented in China by the minister to whom our honour and our interests are at this moment intrusted.

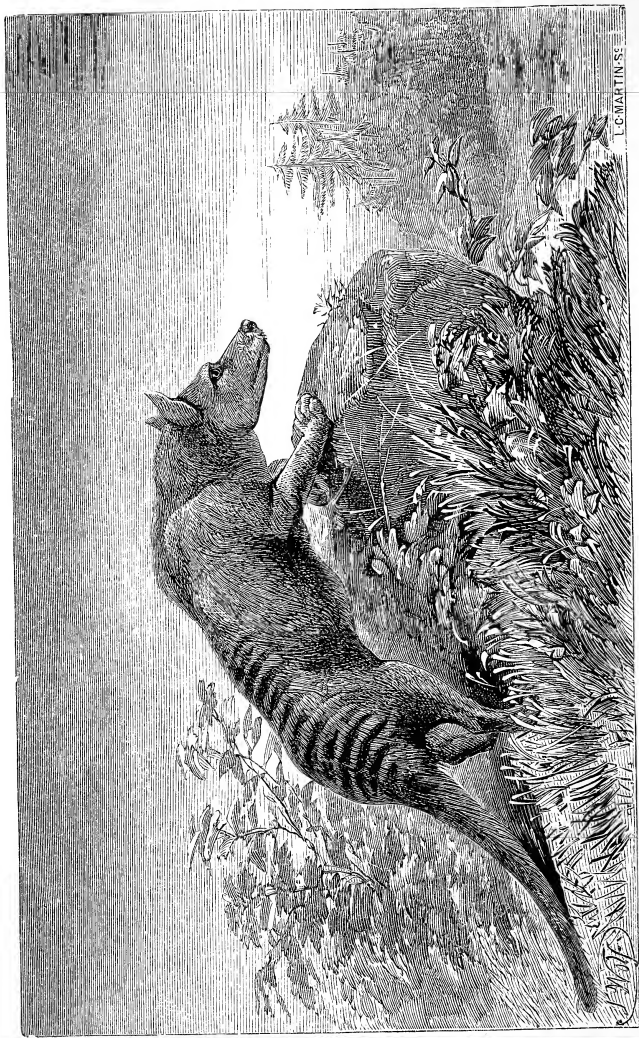
American journals contain many curious particulars from the lately published census of the United States, taken in 1850. The States then contained 23,191,876 inhabitants, being only 4,319,571 less than the united population of Great Britain and Ireland. Of the above, 3,204,313 are slaves. The number of children attending school was 4,089,507. There were of the free population adults,

upwards of twenty years of age, 1,053,420 who could not read nor write. Of "libraries other than private" there were 15,615, containing 4,636,411 volumes. Of newspapers and periodicals there were 2526, issuing annually 426,409,978 copies. Of these 254 were daily papers, with an average circulation of nearly a million copies each per annum. In round numbers the States contained 27,000 clergymen, 24,000 lawyers, and 41,000 physicians and surgeons. The live-stock included 4,336,719 horses, and 6,385,094 milch-cows.

In the beginning of last May, Her Majesty's Government sent out the *Pleiad* steamer to explore, if possible, the "Benneh," or "Mother of Waters," a copious river half-a-mile wide and nine feet deep, which the lamented Dr. Barth discovered in his African travels on the 18th of June, 1851. The *Pleiad*, under the command of Dr. W. B. Baikie, R.N., steamed up the Niger Delta in the beginning of July, and ascended the Chadda 250 miles farther than it had been ascended before,—in fact, till within fifty miles of the point where Dr. Barth had struck upon it and crossed it under the name of the "Benneh" three years before. The expedition returned in safety to Fernando Po on the 7th of November. During the 118 days which they spent in the river there was little sickness, and not a single death occurred in a party of 66 persons. In addition to the precautions employed, this happy result is ascribed to the voyage having commenced at the season when the water was rising; and every friend of Africa must rejoice in an achievement which opens the way so far into the interior.

Amongst the new books which have fallen in our way, we especially welcome "Detached Thoughts and Apophthegms extracted from some of the writings of Archbishop

Whateley." There are few seekers of truth so fearless as the great logician, and few who look at things with an eye so single,—consequently few who see them in an aspect so fresh and striking. Hence it comes that no writer of the present day is so suggestive. This little manual, the compilation of some like-minded disciple, contains scores of sentences, the expansion and enforcement of any one of which would be itself a volume; and we doubt not that many a useful discourse and treatise will be produced by the dilution and skilful seasoning of this book-essence. Miss Farmer has provided for readers young and old a very interesting account of "Tonga and the Friendly Islands." It is the monograph of a missionary field, carefully surveyed and described in a clear, lively, and engaging style. And knowing that those who do the most for pagans at the antipodes are the people who have the greatest compassion for the heathen at home, we would recommend as a companion to the above Miss Barber's "Sorrows of the Streets," a series of London tales, authentic, brief, and touching. Dr. Morgan, of Belfast, under the title of "The Penitent," has given us an edifying and eminently practical exposition of the fifty-first Psalm. "The Message of Christianity" is a series of eloquent and affectionate lectures addressed to large audiences of working men, by the Rev. W. Landels, of Birmingham. There are few towns in the empire for whose industrious classes greater effort has lately been made; and we hope in a future number to give our readers some account of the plans which have been most successfully tried.



The Tasmanian Wolf. (Thylacinus Cynocephalus.)

NIGHT VIEWS FROM MY WINDOW.

LUNAR SCENERY.

CONJECTURE is of course vain as to the past history of our satellite, which our conclusion respecting her seas or plains would suggest. Yet the thought, in spite of all we can do, sets the imagination on fire, and adds a deep and intense interest to the study of the lunar surface and the exploration of her wondrous regions, with the nature and topography of which we are becoming daily more familiar; and from which, by patient and close observation of each astronomer upon his favourite spot, we may at length fairly expect to arrive at a combined and accumulative testimony respecting her condition, and, as the geologist with his hammer, so the astronomer with his telescope, to reap a rich harvest of discovery. At all events, with such an idea as has been, not without very good reason, thrown out by Professor Phillips,* no man can henceforth examine those vast and dreary tracts of lunar desert with the telescope without having his powers of observation and investigation quickened—whether it be to refute or confirm the theory; while the bare possibility of the moon's being a world deserted by its waters, adds an inexpressible interest to the subject. Was that mysterious globe, then, ever a miniature world analogous to our own, and fitted as a habitation for animal existence, for material intelligence? Was it ever an independent planet (*i. e.* independent of the earth)? Was

* Professor Ponzi, an eminent Italian geologist and astronomer, agrees with Professor Phillips in the opinion that water and ocean once existed upon the moon in those vast basins and reservoirs that seem so well fitted to contain them.

there ever a period when, as one of the family of the asteroids (some of which, indeed, are much smaller), it pursued its annual journey round the sun in a different orbit, unlinked to its earthly companion? Did clouds and an atmosphere once envelope it, and forests and savannas cover it? Was there a time when the rushing sound of waters broke the present stillness of its shores and the silence of its ravines? Did the torrent ever leap from the bosom of its dark mountains, and, flowing on in thundering cataracts, make its way through the deep channels, we can so readily perceive, widening as they go, till they empty themselves into the capacious bosoms of its seas, or now desert plains? Did strange fish sport in its ocean depths, now untenanted,—strange birds sing in the branches of lunar woods, now no more? Did the breeze play over its meadows, once enamelled with green and spangled with wild flowers? Did the streamlets sparkle through its sunlit valleys, and the many voices of animal creation, as here, break forth to enliven its solitudes? Above all, did the lungs of an Intelligent Being ever breathe its lost atmosphere, or give expression to a thought in audible accents in that now soundless place? Was hope or fear, joy or sorrow, ever known in that globe, whose calm and silent face now proclaims a world whose former glory has passed away, and the records of its history and its inhabitants (if it had any) alike perished, and the memory of the bright scenes associated with them forgotten? Was the former condition of our satellite succeeded (as, doubtless, was the case here) by a series of fearful cataclysms, which reduced the lunar garden to a desert? And at length did the Almighty hand that made her drag her from her ancient course in the heavens, changing all her axial and annual movements, placing her as a brilliant, but dreary and silent, rock, to give light to man? Did her oceans, at that dread moment, retire to the fountains of the lunar

depths from which they came, and the volcanoes rend her surface, leaving only the grand outlines of her features, still beautiful in their ruins, for man to gaze upon, and for the rest a chaos and a desert in place of a smiling world? Then did the clouds, which once screened her from the solar heat, and the atmosphere, which preserved life, alike depart together with her waters, and thus render her more suitable, in her secondary position and uninhabited state, as a servant and a lamp to an inhabited world? All these, and many more such reflections, are irresistibly suggested by the sound of a single wave, introduced upon that solitary plain at which we are still gazing so earnestly: questions, it is true, not to be answered by man *here* or *now*, but which may be hereafter speculations in which, at all events, we may indulge without fear of the charge of irrationality, and which are not without profit as well as interest. What if, after the great fiery cataclysm which as Christians we believe shall one day rend our own beautiful planet and deform its fair face, dry up its mighty rivers and seas, burn up its forests, and throw down its mountains, as so graphically described by the Apostle,—what, if a different state of things should be reserved for our satellite as well as ourselves? Were an angel to look on the habitation of man immediately after “that great and terrible day,” when the smoke of the terrestrial conflagration had cleared off, and the surface was again perceptible, would he recognise in the charred and blasted desert he beheld a single trace of the beauteous scenes that now adorn it? No; it is evident that the present desolation of our satellite would be a fitting representation of that burnt-up earth. But “we look (says St. Peter) for a new heaven and a new earth:” the word that made and then destroyed can as easily restore. Another revolution, or rather new creation, takes place, and the earth is once more a paradise. And where is her nightly

attendant? In a new heavens may she, too, not shine; herself a new earth, and, like the earth, having undergone as complete a restoration? If the remarkable words of Isaiah and John are to be taken literally,* there is, at least, a mysterious hint of a different kind of illumination upon earth from any we have yet experienced,—an illumination in which our moon shall not have her part as formerly; but, in any case, whether interpreted literally or not, even should she preserve her appointed place and movements in our sky for ever, the argument from analogy still remains; and the speculation is neither irrational nor improbable that geological revolutions, which have so frequently changed the aspect and surface of our planet, may yet (as they have evidently done in past ages), by the Divine power and wisdom, change and wonderfully transform the present aspect and condition of our satellite, imparting to her a new phase of beauty and glory which she has never yet experienced or exhibited.

But in the meantime let us examine the surface of the Mare Imbrium somewhat more closely; for the water-theory, however interesting, is met by certain appearances which have suggested one of quite a different character, and which hitherto has had, and indeed still has, by far the most numerous as well as strenuous supporters.

The first objects that catch the eye, then, scattered somewhat sparingly over the surface of this mysterious tract of desert, are,—besides a few grand and solitary mountains, whose giant peaks are cast in deep shadow upon it,—what constitutes the great and characteristic peculiarity of lunar scenery, viz., its ring-mountains, or craters, as they are called, or wall-surrounded plains: different names have been given to these formations, but they are all evidently of the same origin, the only difference being their size and depth. They are, one and all, to the telescopic view circular pits,

* Isa. lx. 19; Rev. xxi. 23.

varying from a mere hole in the crust of the moon to the enormous dimensions of 150 miles in diameter. The perfectly circular form which they assume seems to be maintained with little variation throughout the whole class; although in many other particulars they differ considerably. The general characteristic of these formations is,—a circular ridge of rock or mountain elevated above the general surface of the moon, enclosing a plain, or a pit, or chasm, as the case may be, generally below the external surface; in the centre of which, or out of the depths of which, rises a conical-shaped mountain, which occasionally, but very rarely, has a crater on its own top. The exceptions to this are circular plains or pits thus encompassed, but without any central mountains, or with many mountains scattered over the interior plain; or in a few cases with a ridge or chain of mountains running across the diameter, either the whole or part of the way; or sometimes, as in Tycho, a number of concentric ridges proceeding one within the other towards the centre. This formation,—which, in some parts of the moon, such as the southern districts, constitutes the entire surface, presenting the appearance (so closely are they crowded together) of the cells of a honeycomb,—is the most remarkable feature which strikes the beholder who for the first time presents his eye to the telescope directed to the moon. If we could only tell the cause of this formation, we should, doubtless, have the key to the lunar history; we should know, at least, all the important part of her story; even as it is, it tells a strange, wild tale of ruin,—of fearful chaos,—which, it is plain, is not owing to the action of water; if water had a part in forming these craters, it was only as an assistant to volcanic action, such as is seen on earth, and possibly in the same way. Certain it is that water alone never threw up from the lunar surface those tremendous craters, any more than water elevated the Alps, or the Andes, or the

Himalayas of earth. Whether it had not a part in denuding them, and thus exposing them to view, however, is not so certain. The usual way of accounting for these strange formations, and, indeed, the hitherto almost unquestioned theory respecting them, has been that of terrestrial volcanoes, with which they have been considered identical; and as some few instances of similar formations are found upon the earth, together with a few discoveries by Sir William Herschel and others of bright objects in the moon thought to be volcanoes absolutely in action, the theory has never been questioned,* and people have set them down accordingly as volcanoes, and the moon as a volcanic rock still active. That this theory is correct in the main, *i.e.*, in so far as regards the past history of our satellite, few, I think, will be disposed to deny; that the grand and terrible revolutions perceptible upon that globe have been chiefly igneous, caused by subterranean fire, or molten matter ejected from her bosom, is sufficiently plain: that part of the theory, however, which considers the moon as a still active volcano, and at the present time actually casting forth her fiery matter, as from terrestrial mountains, is, I think, more than questionable. Notwithstanding the high authority of Sir William Herschel and others of less repute, the very rapid advance of improvement in telescopes,

* Professor Phillips remarks that the perfectly circular form becomes less apparent as the magnifying power of the telescope is increased. This is no doubt the case, but is merely the inevitable effect of approximation, particularly when the object is of large magnitude. Viewed at a distance, you perceive the entire shape or configuration (and it may be added, the *true* form,) at one glance; but on approaching it closely this vanishes, and the view becomes *local*, being confined to a particular and small range of vision, while objects before unperceived swell into importance, and the *coup d'œil* of the entire is lost. Any one familiar with mountain scenery will have remarked this on comparing the shape of a lake as seen from the summit of a mountain and that afforded by a view of it from its margin,—the latter gives a false, the former the true picture of its shape.

and the immensely increased number of quick-sighted observers, have rendered it, if not impossible, at least highly improbable, that any changes whatever are actively in progress upon the surface of the moon. The luminous appearances, which undoubtedly have been seen by the great astronomer mentioned, have been accounted for in other ways much more satisfactory, while the theory never has received the slightest confirmation from the observers of the present generation. The precise position, indeed, of the luminous volcano of Herschel, pointed out by himself, has been ascertained, and under similar circumstances any telescopic observer may see it, as I have myself,* resembling very much indeed, it must be acknowledged to an inexperienced observer, a volcano in action, but yet from other testimony connected with its appearance, as evidently *not*, and resulting from some permanent but highly reflective substance, of which the tops of many of the mountains seem to be composed, and which seen through the undulating movement of our terrestrial atmosphere under high telescopic power, give all the appearances described; a circumstance not the less creditable to the first discoverer, and calculated to show the extreme accuracy and closeness of his observations.

But what are we, then, to conclude from our observations respecting these strange objects, some of which I shall describe more particularly just now ?

Their volcanic activity must have been universal and on a tremendous scale, with which nothing on earth now has apparently a parallel. If they owe their formation to volcanic fire, and if we find them volcanic vents (as we do), of all sizes, scattered over the selenic plains, how came they there ? Was their formation subsequent to, or preceding, the presence of water, if water there ever was ? Upon this subject possibly

* The particular mountain alluded to is Aristarchus.

a comparison with analogous cases upon the earth may throw some light ; if, for instance, the Pacific of our globe were suddenly dried, we should probably see formations not unlike these lunar craters. The isles of the Pacific are most of them but the tops of submarine volcanoes ; the remarkable crater of Kirawee in the island of Owhyhee (that island itself a volcanic mountain) is another example of this. Other islands have suddenly risen from the deep in that ocean, forced up by the same tremendous agency. We can have little difficulty, therefore, I think in imagining a similar case in the moon once, and that these vast and dreary plains are but dried-up lunar Pacifics of former ages, over which water once rolled, but laying bare to view now the double action of both fire and water, both long since,—for incalculable ages, indeed, we may believe—extinguished, vanished, and quiet. Two things we undoubtedly might expect to find were this the case, viz. traces of watery as well as fiery action. The latter is at once presented by the volcanoes themselves : nothing else could have formed these objects ; the former has yet to be fully ascertained and confirmed by observation, although it is true Professor Phillips thinks he has discovered decided traces of diluvial action on the shapes of many of the craters. There is here, indeed, a consideration which I would suggest as important to be attended to in searching for these traces of watery action, viz. that upon such a theory we should only expect to find them in connexion with those craters which lie on those desert tracts over which the ocean may be supposed to have rolled, but not in the highlands of the moon, or those more convulsed portions of her features, where earthquakes shook her to her centre and all but tore her seemingly to fragments ; here we may expect to find only what we actually do, viz. evident traces of that terrible fiery action which once swept *over* her and thundered *through* her.

But here, upon this hypothesis, we are brought to a stand-still in amazement at the awful extent and grandeur of the action that once disturbed the placid face of our smiling attendant; we are even disposed to question the identity of the causes which made one crater (if it may be so called) of 120 or 150 miles diameter, and another 50, or another only a few yards; and we recur at once to our own globe for a solution of the question. Is there, we say, anything at all like this with which we are acquainted upon earth, and which may be ascribed to igneous action? Nothing, it would appear, has ever occurred upon so grand a scale since man's short history commenced;* but a close attention and observation of terrestrial features, and particularly geological investigation of the history of our globe, give, I think, sufficiently distinct intimation of subterranean agency (we should, perhaps, rather call it igneous, plutonic, or cosmical), upon, as might be expected in so much larger a globe, a far grander scale.

The vegetation with which God has so beneficently and beautifully clothed our planet, in order to render it a fit residence for man, hides not a little of the terrific agency that has been at work here before man was created. The various sedimentary deposits forming the present geological strata or stratified rocks of the earth perform the same office. But let any one who has a head for geology, and an eye for geologic observation, and a vivid imagination to conceive it, walk through any country, and he will have as little difficulty as a skilful anatomist would have in demonstrating the interior of the human body in stripping earth of her clothing, and presenting to view the grand and terrible

* It will be seen that throughout this paper the writer has preferred to follow the theory of Von Buch, Sir R. Murchison, and others of the same geological school, to those of Sir Charles Lyell, with reference to the sudden or gradual operation of igneous or cosmical forces.

outlines and primitive features of nature which are hid from the eyes of "the mass;" and which, as each successive garment is removed, down to earth's granite ribs or skeleton, presents the working of an Almighty hand on a scale which even now, in its dead and silent and peaceful majesty, fills the mind with awe to contemplate, and causes the heart to turn with grateful emotion to the kind Providence that did not permit us to enter the world to be spectators of scenes before which, to use the words of God Himself, "the spirit He had created would fail," and the "souls He had made" expire from terror.

The objection, therefore, which suggests itself to the mind, from the consideration of the vast size of some of the lunar craters, and the grandeur of the operations necessary to create them, against the theory of their common and simultaneous origin, may safely be dismissed by a glance at the geological history of our own globe. But to what are we, then, to ascribe the tremendous forces thus brought into activity in either case? It is evident, in order to understand the nature of either lunar or terrestrial forces, or the formations which are the result of them, we must go deeper than the surface, and further back than any epoch connected with humanity. In order to understand lunar volcanoes, or form even a probable guess at what they are by comparison with those of the earth, we must not look to the comparatively small and slight exhibitions of those phenomena now active here, nor even those whose fires are now extinct or silent, but yet which have had a comparatively recent existence: but we must look beyond even the geological or sedimentary eras to the grander and more primitive cosmical agencies, which seem never to have slumbered since the creation, but have continued to display their terrible fiery potency throughout all ages of our earth's history—forcing their way up, and mingling themselves successively with all

strata, from the lowest Silurian upwards even to the very present hour, though it would seem now with diminished, or at least restrained, power, but presenting in all a striking analogical representation of the subterranean energies that have probably made the moon what she is. Thus viewed we shall have little difficulty in believing, even when we fail to realise, the extent and grandeur of the terrible catastrophes that have alike torn from their foundations the solid framework of the planet we inhabit and the calm and brilliant bosom of the attendant that enlightens us. The result of such an investigation will, I am sure, be that which is at all events the deliberate conviction of my own mind, that the agencies which have been at work in both planets *are*, or at least *have been, identical*.

In confirmation of this opinion, Humboldt says,* “We must regard directly the greater part of the wall-surrounded plains and annular mountains as craters of elevation *without continuous phenomena of eruption*, in the sense of Leopold Von Buch’s ‘Geological Hypothesis.’” This carries us back at once to the very formation of both the planets, or their common igneous origin, when from a state of fusion they gradually cooled down, the interior acting by reaction upon the outer crust or surface in producing those annular formations for which the moon is remarkable ; and which, like those of the earth, are connected with what Mr. Nasmyth terms an expiring phenomenon ;† only in the

* Humboldt’s “Cosmos,” part ii. vol. iii. page 336.

† The opinions of that eminent practical astronomer upon this subject are given in a letter to the Rev. J. Crampton, author of the “The Lunar World,” in the appendix to that work (page 101) ; likewise in some very remarkable and interesting papers, read by him at different meetings of the Royal Astronomical Society, where he gives the result of a careful analysis of the law of the rate of cooling of the planets, which appears to be dependent upon the square and cube of the diameter of the planet. The effect will be, as he states in his letter to Mr. Crampton, that “the

case of our satellite, which would cool more rapidly, that cause has ceased entirely, while the earth still continues, but less destructively and frequently, to pour forth from her volcanic mouths the comparatively diminutive streams of melted rock, that indicate a planet as yet uncooled, and a fire as yet unquenched ; and though only restrained by the Almighty hand for the present, doomed, as I think, after one more terrible expenditure of its fury (2 Pet. iii. 10), to be, if not finally extinguished, at least confined within the nucleus for ever after. That a very different state of things once existed here (and *that* in a comparatively recent geological period),—a state of things, too, in no slight degree resembling what we now perceive upon the surface of the moon,—we have the strongest evidence of from the great basin of the Pacific already referred to.

The area of that ocean covered by its basaltic islands alone (*i. e.* of decided igneous origin) is sixteen thousand square miles. These islands (says Mr. Cheever*) are of all shapes and periods of construction, from the simple volcanic dome or cone scarcely at all abraded or disintegrated, to irregular mountain heights, having vast craters with deep gorges between lofty peaks, abrupt precipices, and sharp saddle-ridges of basalt, lava, clinker, scoriæ, volcanic sand, and *débris* some more and others less recent. These volcanic traces extend throughout Polynesia, and clearly show that in ages back all that vast ocean must have been the bed of an indefinite number of volcanoes submarine or subaerial. Besides innumerable subordinate side-vents, it is computed (in the geology of the United States Exploring moon, from its small mass and proportionally great surface, must have cooled down vastly more rapidly than the earth, and all have been dead, tranquil, and silent, for countless ages ere we had passed through our own rampant volcanic era, of which our most tremendous modern volcanoes are but mole-hills in comparison.”

* Cheever's "Island World of the Pacific."

Squadron), from all craters now visible, that there could not have been less than *one thousand volcanoes, in violent, probably simultaneous action*, from the Hawaiian Islands to New Zealand. What a terrific page is here unfolded in the past history of the earth ! How few that sail upon the calm bosom of that ocean, whose name bespeaks at least its general character, smiling, as it does, in the tropical verdure of its sunny isles, whose green and velvet herbage seems to float upon the deep blue of its transparent wave,—where plantains, bananas, and palm-groves, reflected in the crystal waters that surround them, seem to picture a paradise like that of Eden, and a repose like that of Heaven :—how few are enabled to cast the eye of their mind backward and downward to the hell that once gleamed and flamed with its thousand mouths of fire far below ; or in imagination, hear the muttered subterranean thunder, that rolled and shook the buried continent beneath, whose actual surface we are enabled to feel with the sounding-line in our hand, just dropped some thousand fathoms over the vessel's side, as we float on the peaceful water ! And yet it is no wild dream we are relating, no nightmare of the imagination, which the morning sunshine can dispel : it is a reality as certain in the strange history of our globe, as any of the best known and most familiar events which Hume or Macaulay has recorded in the history of our country. J. C.

(*To be continued.*)

THE TIGER-WOLF.

(*Thylacinus cynocephalus*.)

THE great order, or rather division, of mammalia, the *Marsupialia*,* is furnished with a pouch, into which the young are received and nourished at a very early period of their existence. The first species of the group, known to voyagers and naturalists, was the celebrated opossum of North America, whose instinctive care to defend itself from danger causes it to feign the appearance of death. As the great continent of Australia became known, it was found that the great mass of its mammalia, from the gigantic kangaroo to the pigmy, mouse-like potoroo, belonged to this singular order. The order contains a most anomalous set of animals, some being exclusively carnivorous, some chiefly subsisting on insects, while others browse on grass; and many live on fruits and leaves, which they climb trees to procure; a smaller portion subsisting on roots, for which they burrow in the ground. The gentle and deer-faced kangaroo belongs to this order; the curious bandicoots, the tree-frequenting phalangers and petauri, the savage "native devil,"† and the voracious subject of this notice.

The "Tiger-wolf" is a native of Van Diemen's Land, and is strictly confined to that island. It was first described in the ninth volume of the "Linnean Transactions," under the name of *Didelphis cynocephalus*, or "dog-headed opossum," the English name being an exact translation of its Latin one. Its non-prehensile tail, peculiar feet, and different

* So called from the Latin word *marsupium*, a pouch.

† *Diabolus ursinus*, the ursine opossum of Van Diemen's Land, a great destroyer of young lambs.

arrangement of teeth, pointed out to naturalists that it entered into a genus distinct from the American opossums ; and to this genus the name of *Thylacinus** has been applied ; its specific name *cynocephalus* being still retained in conformity with zoological nomenclature, although M. Temminck, the founder of the genus, honoured the species with the name of its first describer, and called it *Thylacinus Harrisii*.

Mr. Gould has given a short account of this quadruped in his great work "The Mammals of Australia," accompanied with two plates, one showing the head of the male, of the natural size, in such a point of view as to exhibit the applicability of one of the names applied to it by the colonists, that of "zebra-wolf." He justly remarks that it must be regarded as by far the most formidable of all the marsupial animals, as it certainly is the most savage indigenous quadruped belonging to the Australian continent. Although it is too feeble to make a successful attack on man, it commits great havoc among the smaller quadrupeds of the country ; and to the settler it is a great object of dread, as his poultry and other domestic animals are never safe from its attacks. His sheep are, especially, an object of the colonist's anxious care, as he can house his poultry, and thus secure them from the prowler ; but his flocks, wandering about over the country, are liable to be attacked at night by the Tiger-wolf, whose habits are strictly nocturnal. Mr. Gunn has seen some so large and powerful that a number of dogs would not face one of them. It has become an object with the settler to destroy every specimen he can fall in with, so that it is much rarer than it was at the time Mr. Harris, its first describer, wrote its history, at least in the cultivated districts. Much, however, of Van Diemen's Land is still in

* From the Greek words for a pouch and a dog, *θύλακος* and *κύων*. Dr. Gray had previously named it *Peracyon*, from *πήρα*, a bag, and *κύων*, a dog.

a state of nature, and as large tracts of forest-land remain yet uncleared, there is abundance of covert for it still in the more remote parts of the colony, and it is even now often seen at Woolnoth and among the Hampshire Hills. In such places it feeds on the smaller species of kangaroos and other marsupials,—bandicoots, and kangaroo-rats, while even the prickly-covered echidna—a much more formidable mouthful than any hedgehog—supplies the Tiger-wolf with a portion of its sustenance. The specimen described by Mr. Harris was caught in a trap baited with the flesh of the kangaroo. When opened, the remains of a half-digested echidna* were found in its stomach.

The Tiger-wolf has a certain amount of daintiness in its appetite when in a state of nature. From the observations of Mr. Gunn it would seem that nothing will induce it to prey on the Wombat,† a fat, sluggish, marsupial quadruped, abundant in the districts which it frequents, and whose flesh would seem to be very edible, seeing that it lives on fruits and roots. No sooner, however, was the sheep introduced than the Tiger-wolf began to attack the flocks, and has ever since shown a most unmistakeable appetite for mutton, preferring the flesh of that most useful and easily mastered quadruped to that of any kangaroo however venison-like, or bandicoot however savoury. The colonists of Van Diemen's land have applied various names to this animal, according as its resemblance to other ferocious quadrupeds of different climates struck their fancy. The names of "Tiger," "Hyena," and "Zebra-wolf," are partly acquired

* *Echidna aculeata*, or *E. hystrix*, the porcupine ant-eater, a curious edentate, spine-covered quadruped, closely allied to the still stranger *Ornithorhynchus*, the duck-bill.

† *Phascolomys Vombatus*, a curious, broad-backed, and large-headed marsupial, two specimens of which are in the Zoological Gardens. It is a burrower, and in the teeth it resembles the rodent animals; hence its name, from *φάσκολον*, a pouch, and *μῦς*, a mouse.

from its ferocity, somewhat corresponding with that of these well-known carnivorous denizens of other lands, and partly from the black bands which commence behind the shoulders, and which extend in length on the haunches, and resemble, in some faint measure, those on the barred tyrant of the Indian jungles, and the other somewhat similarly ornamented mammalia implied in the names. These bars are well relieved by the general greyish brown colour of the fur, which is somewhat woolly in its texture, from each of the hairs of which it is composed being waved.

The specimens in the Zoological Gardens are very shy and restless ; when alarmed they dash and leap about their dens and utter a short guttural cry somewhat resembling a bark. This shyness is partly to be attributed to their imperfect vision by day, and partly to their resemblance in character to the wolf, whose treachery and suspicious manners in confinement must have struck every one who has gazed on this "gaunt savage" in his den in the Regent's Park. The specimens exhibited are the first living members of the species brought to Europe. The male was taken in November 1849, and the female at an earlier period in the same year, on the upper part of St. Patrick's River, about thirty miles N.E. of Launceston. After being gradually accustomed to confinement by Mr. Gunn, they were shipped for this country, and reached the Gardens in the spring of 1850. It is very seldom, indeed, that they are caught alive ; and when so caught they are generally at once killed, so that it was with some difficulty, and by offering a considerable pecuniary inducement to the shepherds, that they were at last secured for the Zoological Society.* In their den they show great activity, and can bound upwards nearly to the roof of the place where they are confined. A. W.

* Mitchell's "Popular Guide to the Zoological Gardens," p. 9 (1852).

ENGLISH LETTER-WRITERS.

LADY MARY WORTLEY MONTAGU.

LADY MARY PIERREPOINT was the daughter of Evelyn, Earl of Kingston, afterwards Marquis of Dorchester, and, later still, Duke of Kingston. She was born in 1690. She had the misfortune to lose her mother in 1694 : this lady was first cousin to the father of Henry Fielding, the novelist.

Lord Kingston was a heartless and selfish fine gentleman. While his daughter was a bright and pretty little child, he petted and was proud of her. But when she began to grow up to maidenhood, he neglected her ; and when she had reached maturity, he tyrannised over her.

But her education was good. From early years she was a diligent student. She had a rare aptitude for languages. When very young she knew Greek ; she was well acquainted with French, Italian, and German, and she taught herself Latin. Bishop Burnet revised a translation which she made from Epictetus before she was twenty.

She also loved poetry, and she read the "light literature" of the day. To us the folios of laborious and dreary fiction which our ancestors used, queerly enough, to read for amusement, would be simply impracticable. The tediousness of those tales is amazing. But she knew them well. The days of skimming had not come ; and she criticised the puppets who were called heroes and heroines, and who alternately mouthed and maundered through the tiresome scenes. Thus read, those romances, though in themselves as barren as a sea-beach, may not have done her mind much harm. She really studied them ; and the very act of

studying, whatever the subject may be, helps to mature the mind ; for, as has been often said, the Thinker takes more to a book than can be got from it.

But, morally, there can be no doubt of the pernicious effect which this trumpery had upon her. She learned to believe in the cold and high-flown sentimentalities of the Clelias and Climenes, the Astræas and Cassandras,—or she acted, very early, as if she believed in them. Her father's conduct was, no doubt, arbitrary—but hers was unfilial. He was heartless—but she was unmaidenly.

The story can be briefly told. Mr. Wortley Montagu—a gentleman of moderate abilities and considerable fortune—met her at what we should call a literary *matinée*, and was struck by her beauty and wit. Through his sister, at whose house they met, he commenced a correspondence with her, to which she seemed to have little diffidence in replying. His expressions became ardent : she was wonderfully cool throughout for a young lady of twenty, and in fact coquetted with him. But at last he made proposals for her hand to her father.

Lord Dorchester received his offers graciously, and all was well until the question of settlements was discussed. But then there was a rupture. Mr. Montagu refused to entail his property ; the haughty lord insisted that he should ; both were firm, and the negotiations were ended. Her father told Lady Mary what had happened, and announced that he had chosen a more suitable husband for her. She professed to give her consent ; but, in the meanwhile, continued to correspond with her first lover, and at last clandestinely left her father's roof in August 1712, and married Mr. Montagu.

To such a history there could only be one conclusion. Retribution was deferred, but it was inevitable. Mr. Montagu seems to have been a plain, stolid, good-natured sort of

man ; she was all brilliancy, coldness, and wit. These elements might mix in the solution of society, but they could never combine ; above all, serenity and peace of mind must have been altogether wanting on one side, if not on both. For two years after the elopement they lived in retirement ; but in 1714 she re-entered the great world, and, by reason of her wit and beauty, became a star of the first magnitude in the dull and sombre court of George I. In 1716 Mr. Montagu was appointed ambassador to the Sublime Porte, and, accompanied by his wife, repaired to Constantinople. It was at this time that she wrote her celebrated Oriental letters to some of the ladies of the English court and to Alexander Pope—her greatest literary friend then, and for some time afterwards, but ultimately her unscrupulous enemy and “the wicked wasp of Twickenham.”

At Constantinople she learned Turkish, and in some of her letters she even gives translations from the popular poetry of that difficult tongue. But her disposition was not, we think, poetical. She was more like Fielding than Pope ; or, as we should now say, more like Thackeray than Tennyson. Her descriptions of scenery and society, of places and people are far more interesting than her versions of the bards of Stamboul.

Probably the main element of her success as a sketcher was her coolness—or, to use a more descriptive term, her want of heart and sympathy. She looked on life as on a show, where the main element was variety ; but where she herself liked sometimes to appear, and, when she did do so, to be applauded. And it is to this coldness of temperament, we suspect, that we owe the introduction of inoculation for small-pox into England, which is plainly traceable to her : none but a woman of great clearness of head and calmness of disposition could have tried such a process upon her own and only boy.

The following extract on the subject, from a letter dated Adrianople, April 1, 1717, will be found interesting :—

“Apropos of distempers, I am going to tell you a thing that will make you wish yourself here. The small-pox, so fatal and so general amongst us, is here entirely harmless by the invention of *ingrafting*, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox; they make parties for this purpose, and when they are met (commonly fifteen or sixteen together), the old woman comes with a nutshell full of the matter of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much matter as can lie upon the head of her needle, and after that, binds up the little wound with a hollow bit of shell, and in this manner opens four or five veins The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three Every year thousands undergo this operation; and the French ambassador says pleasantly that they take the small-pox here by way of diversion, as they take the waters in other countries. There is no example of any one that has died in it; and you may believe I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son.

“I am patriot enough to take pains to bring this useful invention into fashion in England; and I should not fail to write to some of our doctors very particularly about it, if I knew any of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them not to expose to all their resentment the hardy wight that should undertake to put an end to it. Perhaps, if I live to return, I may, however, have courage to war with them.”

She did live, and had the courage. As Lord Wharnccliffe says among his Anecdotes, nobody is now aware what an arduous and thankless enterprise it was. “Those who have heard her applauded for it ever since they were born, and have also seen how joyfully vaccination was welcomed

in their own days, may naturally conclude that when once the experiment had been made, and had proved successful, she could have nothing to do but to sit down triumphant and receive the blessings and thanks of her countrymen. But it was far otherwise. The clamours raised against the practice, and of course against her, were beyond belief. The faculty all rose in arms to a man, foretelling failure and the most disastrous consequences; the clergy descanted from their pulpits on the impiety of thus seeking to take events out of the hands of Providence; the common people were taught to hoot at her as an unnatural mother, who had risked the lives of her own children." But she triumphed. She had tried it on her boy at Belgrade; she exhibited it on her daughter in England before four physicians deputed by Government; and at last she had the gratification of seeing the practice universally adopted.

As we have given one extract from these Eastern letters, we may take one or two other passages from them here before speaking further of her life.

"I am now sitting," she says to Mrs. Thistlethwayte, writing from Pera, "this present fourth of January, with the windows open, enjoying the warm shine of the sun, while you are freezing over a sad sea-coal fire; and my chamber is set out with carnations, roses, and jonquils, fresh from my garden. I am charmed with many points of the Turkish law—to our shame be it spoken, better designed and better executed than ours—particularly the punishment of convicted liars (triumphant criminals in our country); they are burnt in the forehead with a hot iron, when they are proved the authors of any notorious falsehoods. How many white foreheads should we see disfigured; how many fine gentlemen would be forced to wear their wigs as low as their eyebrows, were this law in practice with us!"

At Adrianople she dined with the Grand Vizier's lady, the widow of the Emperor Mustapha II. After giving an account of her reception, she proceeds to describe another visit which she paid directly afterwards:—

"The Greek lady with me earnestly solicited me to visit the *Kiyâya's*

lady, saying, he was the second officer in the empire. I had found so little diversion in the Vizier's harem, that I had no mind to go into another. But her importunity prevailed with me, and I am extremely glad I was so complaisant.

“All things here were with quite another air than at the Grand Vizier's; and the very house confessed the difference between an old devotee and a young beauty. It was nicely clean and magnificent. I was met at the door by two black eunuchs, who led me through a long gallery between two ranks of beautiful young girls, with their hair finely plaited, almost hanging to their feet, all dressed in fine light damasks brocaded with silver, into a large room or rather pavilion, built round with gilded sashes, which were most of them thrown up, and the trees planted near them gave an agreeable shade which hindered the sun from being troublesome. The jessamines and honeysuckles that twisted round their trunks shed a soft perfume, increased by a white marble fountain playing sweet water in the lower part of the room, which fell into three or four basins with a pleasing sound. The roof was painted with all sorts of flowers, falling out of gilded baskets, that seemed tumbling down. On a sofa, raised three steps, and covered with fine Persian carpets, sat the *Kiyàya's* lady, leaning on cushions of white satin, embroidered; and at her feet sat two young girls about twelve years old, lovely as angels, dressed perfectly rich, and almost covered with jewels. But they were hardly seen near the fair *Fatima* (for that is her name), so much her beauty effaced everything I have seen,—nay, all that has been called lovely, either in England or Germany. I must own that I never saw anything so gloriously beautiful, nor can I recollect a face that would have been taken notice of near hers. She stood up to receive me, saluting me after their fashion, putting her hand to her heart with a sweetness full of majesty. She ordered cushions to be given me, and took care to place me in the corner, which is the place of honour. I confess though the Greek lady had given me a great opinion of her beauty, I was so struck with admiration that I could not for some time speak to her, being wholly taken up with gazing. To say all, in a word, our most celebrated English beauties would vanish near her.

“She was dressed in a caftán of gold brocade, flowered with silver, very well fitted to her shape, with a waistcoat green and silver, her slippers white satin, finely embroidered; her lovely arms adorned with bracelets of diamonds; upon her head a rich Turkish handkerchief of pink and silver, her own fine black hair hanging a great length in various tresses, and on one side of her head some bodkins of jewels . . .

“She told me the two girls at her feet were her daughters, though she appeared too young to be their mother. Her fair maids were ranged below the sofa to the number of twenty, and put me in mind of the pictures of the ancient nymphs. I did not think all nature could have furnished such a scene of beauty. She made them a sign to play and dance. Four of them immediately began to play some soft airs on instruments between a lute and a guitar, which they accompanied with their voices, while the others danced by turns. This dance was very different from what I had seen before. Nothing could be more artful. The tunes so soft! the motions so languishing! accompanied by pauses and dying eyes! When the dance was over, four fair slaves came into the room with silver censers in their hands, and perfumed the air with amber, aloe’s wood, and other scents. After this they served me coffee upon their knees in the finest japan china, with *soucups* of silver, gilt. The lovely Fatima entertained me all this while in the most polite, agreeable manner, calling me often *Guzél sultanum*, or the beautiful sultana, and desiring my friendship with the best grace in the world, lamenting that she could not entertain me in my own language.

“When I took my leave, two maids brought in a fine silver basket of embroidered handkerchiefs; she begged I would wear the richest for her sake, and gave the others to my woman and interpreter. I retired through the same ceremonies as before, and could not help thinking I had been some time in Mahomet’s paradise, so much was I charmed with what I had seen. I know not how the relation of it appears to you; I wish it may give you a part of my pleasure, for I would have my dear sister share in all the diversions of

“Yours,” &c.

The writer of such letters as these might well say to her sister, with reference to those of Madame de Sévigné, “Very pretty they are, but I assert, without the least vanity, that mine will be full as entertaining forty years hence.”

But her residence in the East formed but a small portion of her life. In 1717 Mr. Wortley was recalled from Constantinople; and Mr. Addison, the *Spectator*, who was at that time Secretary of State, wrote him a letter on the occasion, in which he endeavoured to make out that he was in high favour at home—not, however, very successfully.

On arriving in England with her husband, in 1718,

Lady Mary was persuaded by Pope to take a house at Twickenham ; and for a while their intercourse was characterised by great warmth ; but it had no right basis, and the fire, which burned fiercely, soon burned itself out.

Their quarrel is a matter of history. And even, according to Lady Mary's account, although Pope's conduct was unworthy, hers was unfeeling. He had accustomed himself to write to her in an extravagantly complimentary style, not unusual then, and she had not taken his letters seriously. She had received the vain little poet's expressions of admiration as so much adroit and fashionably gallant flattery, and nothing more. But one day he made a verbal declaration of attachment, which she was compelled either to resent or to ridicule. If she had possessed a real womanly character her course would have been simple enough. Amiability and modesty would not have been incompatible with the expression of such indignation as would have awed the offender, and impressed him with the majesty of high-souled purity. But she was heartless and cruel. She saw that resentment might cause scandal and inconvenience ; whereas ridicule would leave the triumph on the laugher's side. So she burst into a fit of laughter, and made an enemy for life of one who never forgave, and whose malice knew no scruples when he was provoked. Of the manner in which both parties pursued their quarrel, we say no more than that it was at once disreputable and contemptible.

For some years she continued to reside in this country. Her birth placed her in the highest circles of society ; her beauty and wit made her one of the most observed of all observers there. And she continued to be a copious letter-writer. Her letters from Twickenham teem with scandal, and jests, and the tittle-tattle of that corrupt time, which has been so often, and so falsely, called the Augustan age of England.

But she does not appear to have been happy. Apart from the past of her career, we do not think that her disposition was one for happiness. When her father died, which he did somewhat suddenly, in 1726, her chief sorrow is about—his will. She and her step-mother were quarrelling when the Duke expired.

The son, whom she had inoculated at Belgrade, was a torment to her and everybody as a boy, and a disgrace as a man. And the husband, for whom she had deceived her father, was never a help-meet for her, their characters and dispositions being quite opposite.

The latter fact is the only one which can be offered in solution of the strange problem presented by the last years of her history. In 1739 she left England, after some months' preparation, and she remained abroad until her husband died in 1761. She wrote sometimes to him; she even seems to have pressed him to join her. But he never did. After his death she was persuaded by her daughter to revisit England. She arrived in October 1761; but her journey aggravated a complaint under which she had long laboured, and she died ten months afterwards, namely, on August 1762, in the seventy-third year of her age.

We had marked for quotation some specimens of her wit and powers as a delineator of English and European life, but we find we must conclude. And yet we pass away from the picture of so much beauty and so much coldness with reluctance. We would fain see some gleam of kindness, some smile of sympathy and affection light up those exquisite and cynical features—we know that we shall look in vain. And so we move onward: and now a sort of reverent awe comes over us as we see in such close juxtaposition the name of one of England's noblest daughters, and a simple letter-writer,—LADY RACHEL RUSSELL.

C. M. C.

LIFE, IN ITS INTERMEDIATE FORMS.

No. II. (*continued*).

INSECTA.

WHEN these pages come under the eyes of our readers, the Butterflies will be beginning to spangle the fields and woodlands. Welcome visitants they always are, in their airy grace and beauty; not less welcome than the flowers on which they alight, and whose brilliant hues and delicate petals are rivalled by their painted and filmy wings.

“The Butterflies are come!” Yes, it sends a thrill of pleasure through the heart, after the long dreary winter, to see the first Butterfly of the season sailing on its broad sylphic pinions in the warm beams of a calm April morning. Perhaps it is the pretty little Orange-tip (*Mancipium cardamines*), that attendant on early spring, coursing along some rural lane; or the Brimstone (*Gonepteryx rhamni*), hovering over a perfumed cluster of primroses, itself scarcely to be distinguished from one of them. Perhaps it is the Admiral (*Vanessa Atalanta*), whose fine scarlet bands afford so rich a contrast to its black velvet wings; or the Peacock (*V. Io*), with its gorgeous violet eyes; or the Tortoise-shell (*V. urticae*), clouded with yellow and orange and black,—busy among the lowly nettles, attentive to the grand occupation that forms “The Whole Duty of” Butterflies,—the providing for the continuance of the race, by depositing here an egg and there an egg, on the stems or beneath the leaves of those grim and formidable weeds. But even if it is one of much humbler pretensions, the White (*Pontia brassicae*) of our kitchen-garden, still it is a

Butterfly, and we look upon it with a hearty welcome, forgiving, and for the moment forgetting, all the robbery it committed upon our cabbage *before it was born*.

And these frail creatures are worthy of our kindly regard, not only for their association (true children of the sun, as they are) with all that is most lovely in scenery, and most delightful in season, but because of their own personal claims to our admiration. If we capture that Red Admiral or Peacock that is so intent upon the nettles, what a glorious creature should we think we had obtained if we had never seen anything like it before! How light and papery, yet how strong and effective, are these broad wings! with what an elegant pencil has this pattern of beautiful colours been traced! But stay! let us look closer at this painting, aiding our sight with a pocket-lens. It is a most exquisite mosaic, fashioned out of innumerable coloured pieces, of regular shape and arrangement.

If we look at our fingers' ends with which we have touched, though ever so lightly, these pencilled surfaces, we see that some of the colouring is transferred to them; and if we have pressed the wing, as in seizing it for the purpose of capture, we find that the finger presents the pattern of the touched part in all its beauty. Now by touching with the charged finger-end a strip of glass, and placing this latter beneath a microscope, we discover an extraordinary specimen of the Divine handiwork. Hundreds of objects are left adhering to the glass plate, which we know not whether to call scales or feathers. They display considerable variety of form, but the most common is oval, or semi-oval, with a little projecting stem or quill at one end. They are thin and flat, transparent and membranous in texture, with several ribs running lengthwise, the points of which project beyond the end of the scale.

These scales, then, produce the beautiful parti-coloured

patterns of a Butterfly's wing ; but of positive colour they possess individually no trace under the microscope, save a dull smoky appearance. It is by the separation and reflection of the prismatic hues that they appear beautiful, but by what law some reflect none but red, some none but yellow, some none but blue rays, we know not.

On examining the wing that has been denuded of its coloured scales, we see a transparent, dry, brittle membrane, pitted with innumerable punctures arranged in lines ; these are the depressions in which the stems of the scales were originally planted. They were so ordered that the extremity of one scale reposed on the base of its successor, overlapping and concealing its stem, so that the arrangement resembled that of tiles or slates on a roof. We have said they are innumerable ; the expression is not literally exact, but you will think it excusable when you hear that Leeuwenhoek computed the number of scales on a Silkworm Moth (*Bombyx mori*) to exceed 400,000 ; and those which bespangle the wings of the great tropical Moths and Butterflies, some of which expand eight or nine inches, must be vastly more numerous, since the size of the scales does not at all depend on the dimensions of the wing.

The whole Class of Insects is subject to metamorphosis ; that is, the same individual animal in the course of its progress from infancy to adult age assumes an appearance and form, with organs both external and internal, different at different stages of its life. In none of the Orders are these transformations more remarkable than in that which we are now considering, the elegant Order *Lepidoptera*, the Butterflies and Moths.

The parent Butterfly, seeking on restless wing for the plant which shall form a suitable food for her unborn young, at length lays on its leaf an egg, cementing the tiny atom to its surface by a natural glue, which immediately hardens. In

a few weeks a minute Caterpillar breaks from the prison, and frequently commences existence by devouring with its powerful jaws the horny egg-shell which it has just vacated. But vegetable matter is its proper diet, and, by the providence of its mother, it finds its habitation cast on a plant which is suitable for its nourishment ; it is like an ox placed in the midst of an unbounded pasture.

The little worm feeds, and feeds, and feeds, with wonderful voracity : it does nothing else in short, and consequently grows with rapidity. It soon finds its skin too strait for it, for this can stretch only to a certain extent, and has no power of actual growth as ours has, and the horny parts, as the head and feet, cannot even expand, being quite rigid. What must be done ? It splits its skin and throws it off ; a new one, soft and expansile, having been prepared beneath it. This presently hardens, and when by the rapid growth of the Caterpillar this is stretched to its utmost capacity, it also is split and cast off ; and a similar process is repeated four or five times in succession.

By this time the insect has attained its full size ; it has not yet, indeed, finished life, but it will need to eat no more ; all its nourishment is taken in the Caterpillar state, which it now prepares to quit for that of the Chrysalis. No one would have recognised the worm-like Caterpillar as the offspring of the aerial Butterfly ; perhaps, one might say, without a figure, "He is so changed that his own mother would not have known him," but the character in which the masquerader next appears is as little like either. Look at the stiff Chrysalis, all points and angles, immoveable except for a slight wriggle in his armour, tied up to the stalk of a plant, like a knave to a whipping-post, and say what he is like ! Certes, you will not guess (supposing you are not of the illuminati) either Caterpillar or Butterfly.

The process of transformation is well worthy of being

witnessed, and we will describe it as we once had the pleasure of observing it, in the case of one of those beautiful large species known as Swallow-tails. It was an American Butterfly, but so very closely allied to our fine native species the *Papilio Machaon*, and the very scarce *P. Podalirius*, that should you ever be so fortunate as to witness the transformations of either of these magnificent insects, you will see that the one process is the exact counterpart of the other.

When the Caterpillar has attained its full size it crawls to the under part of a branch, and spins a little knob of silk, of which it takes hold with its hindmost false-legs: it then spins a girdle, composed of many contiguous threads of silk, fastened at each end; making a bow large enough to admit the body, and intended to support the Chrysalis; when finished, the Caterpillar puts it over its head. It continues in this state about two days and a half, during which time it has gradually lost its power of holding on by the feet, and rests with its whole weight upon the knob and cincture of silk. It now casts off its Caterpillar skin, and enters the Chrysalis state. By good fortune we were happy enough to see this change take place in one of our captives. The Caterpillar appearing very uneasy and restless, we watched it at intervals for about half-an-hour; when, by strong and apparently painful inflations, a slit was made in the back of the third ring or segment, and the Chrysalis forced itself through; gradually extending the slit *upwards*, till the head was split and separated, and *downwards* for several rings. The skin was then gradually pushed down: we had wondered how it would get through this part of the business, for the weight of the Caterpillar pressed the silken girth very tightly round the body; but there seemed no real difficulty; the loose skin being worked backwards by the motion of the segments. When it was pushed down to the extremity, the tail of the Chrysalis was thrust out under-

neath, and pressed upwards to take hold of the little knob of silk ; this being done, the old skin was jerked off by the writhing of the body. The silken cord was now round the body, between the sixth and seventh rings, and the Chrysalis twisted and turned, till it got the girth three rings nearer the head, about the middle of the wing-cases ; the skin was so soft and the silk so slender, that it cut into the wing-cases, so far as to be invisible, but no ill resulted from this circumstance to the perfect Butterfly.

The newly transformed Chrysalis is soft, with the skin resembling in consistence wetted parchment ; its shape is not very remote from that of the Caterpillar ; in the course of an hour or two, however, it materially alters its form. Some of its segments contract and condense, prominent angles appear, the skin roughens and becomes very rigid, and the creature has assumed the condition in which it will pass a sort of torpid vegetative existence, through some nine or ten months in the year, or even more.

In the case of which we are speaking, the transition to the Chrysalis state occurred near the end of August, and it was not until the middle of July of the following year that the Butterfly was matured.

When this period of second birth approaches,—so apt an emblem of the resurrection, that the ancient Greeks, who used the same term (*Ψυχή*, *psyche*) to signify a butterfly and a soul, called the resurrection “the hope of worms,”—it is manifested by a change in the appearance of the Chrysalis. The skin becomes very thin and fragile, and, for some days before the exclusion, the colours, spots, and marks of the perfect Butterfly, are distinctly perceptible, through the transparent integument, but all in miniature.

At length the hour arrives ; the Chrysalis, which for some hours has appeared uneasy, wriggling, and apparently inflating its body, succeeds in splitting the thin and brittle

skin of the back. The imprisoned Butterfly pushes out ; the head with its palpi and antennæ, and its spiral tongue, and the legs, are all drawn out of their several sheaths, the latter limbs are thrown forward, and the insect stands on them, weak and staggering. It rests a moment or two, then proceeds ; the painted wings now appear, minute and hanging against the sides like wet paper, but perfect in their colours and markings. The Butterfly is free !

It essays to lift its wings, but these organs, all soft and flabby as they are, are utterly unfit for flight. But see, a change is coming over them ! They are swelling irregularly, crumpling up, puckering into folds here and there, as their vessels are distending with fluids from the body. They look hopelessly spoiled. Though small at first they were at least symmetrical ; but now they look like pieces of wet paper crushed up in the hand and partially opened, and the farther the work proceeds the worse it appears to grow. But by and by, they begin to become smooth and even again ; the distention and expansion have reached to every part in an uniform ratio, and wings of full size and perfect form are developed, still, however, soft, flaccid, and pendent. A quarter of an hour more removes this defect ; the elegant organs momentarily acquire rigidity ; at length the insect can raise them to an erect position. As soon as this is attained, the beautiful creature marches to and fro, as if rejoicing in its new powers, and proud to display them ; but in reality testing the capabilities of its organs, and perhaps accustoming itself, by repeatedly opening and shutting its wings, to the practice of those muscular movements on the force and precision of which its flight will depend.

At length it launches into the air, and sails away to the inviting flowers, a happy denizen of a new element.

A WEEK IN WURTEMBERG.

AMONGST the earliest and best of the friendships we formed in Stuttgart was that of the City-Vicar, C. G., who gave us from the first a true Suabian greeting, and covenanted with us, that every afternoon of our stay an hour or two should be spent together in the Royal Park or on the hills that rise on each side from the city. To conversations thus enjoyed we owe much, as our very intelligent friend was well able to instruct us on all those questions connected with church, school, and people, on which we were anxious to inform ourselves, and from travel abroad, especially in America, was in a position to exercise a more unbiassed judgment than is possible with those that have not passed the borders of their native land. This is needed; for to nothing but a large degree of self-complacency, inherent in the natives of this little kingdom and the citizens of its small metropolis, can be ascribed the expressions not unfrequently heard, "There is but *one* Würtemberg," "There is but *one* Stuttgart." It was in one of these evening walks with our dear friend, the Stadt-Vicar, that we met in the park the royal family, in the countenance of one member of which we thought we discerned the marks of anxiety and grief. It was Olga, the Crown princess, and daughter of the Russian Czar. A few hours before Stuttgart had received the news of the battle of the Alma, and Russia's first defeat had been magnified in the public papers into the taking of Sebastopol, with the capture of 22,000 prisoners, and the loss, in killed and wounded, of 18,000 of the Imperial troops! The end of our walk on this occasion was Cannstadt, famous for its baths, and a

very favourite resort of the inhabitants of Stuttgart. To the English reader Cannstadt has acquired a melancholy interest from its having been the death-place of our lamented countryman Dr. Kitto; and to many it will call up the name of the gifted and genial student John Mackintosh, who in like manner there ended his promising career.

Tuesday morning was devoted to the Mission Conference,—a meeting which lasted five hours. The Basle Society, though having its centre in Switzerland, and drawing much of its resources from that country, is nevertheless bound by so close an affinity to Würtemberg, that a Conference in Stuttgart is reasonably deemed most desirable. From Würtemberg it receives, at least, 68,000 francs per annum, which, from a kingdom of less than two millions of inhabitants, the majority of whom have often to suffer from absolute want, is a contribution sufficiently demonstrative of their ardent zeal in the cause of Christ. Still more, to Würtemberg does the Basle Society look for its supply of *men*; and in the devoted missionaries who come forth from its obscure villages to fill the ranks of the Basle and other Missionary Societies, Würtemberg confers a boon of far richer price and higher value than any that can be bought with gold. Of the missionaries in the service of our own “Church Missionary Society” in England, fifty-three have received their training in the Basle Institution; and out of this number not less than twenty-nine are from the little kingdom of Würtemberg. The Basle Institution has sent thirty-nine ministers into the United States, twenty-four of whom are Würtembergers. In Russia, sixteen clergymen have been sent out from the same establishment, to take the spiritual oversight of the German communities. Jerusalem has its present bishop, and many other places in all parts of the world have ministers, missionaries, professors, superin-

tendents, or schoolmasters, for whom they are indebted to the Basle Institute, and of whom the majority are from the same small kingdom. Of the 264 men who have received their training in the Basle Missionary Seminary, the little kingdom, whose population is far below that of our own city London, has contributed the greater part,—more therefore than Switzerland, Baden, Bavaria, Prussia, Saxony, and every other country added together. With circumstances like these, a Conference such as that we witnessed in Stuttgart, whereby the brethren at Basle had an opportunity of personal intercourse with their devoted friends in Würtemberg, although none such had previously taken place, seemed most appropriate; and for the future we may anticipate that the Christian people in Würtemberg will feel themselves still more closely bound to their brethren in Switzerland, and ready still more largely to contribute to the furtherance of their missions.

Amongst other pleasing matters of remark at this Missionary Conference, we will notice one which struck us somewhat forcibly. Of the whole number present, which might be from two to three hundred, at least two-thirds belonged to the agricultural class,—being men who had in many instances come five, ten, or twenty miles, headed most usually by the clergyman of the village, in order to attend this meeting. These peasants are by their deep poverty sometimes almost without the ordinary means of subsistence; yet it is amongst them that the Mission finds its warmest supporters; and it is in their ardent piety and zealous devotion to the cause, that we discern the true secret of its strength.

We have already said that Würtemberg has attained no mean eminence in the world of letters. Its University at Tübingen, seventeen miles from Stuttgart, has sent forth, since its foundation in 1477, a succession of men who have

distinguished themselves in science, literature, and philosophy. At the end of the fifteenth century, it enjoyed the presence of the greatest German scholar of the age, the learned Reuchlin. At a siege of Stuttgart, the commander's orders were to spare the house of Reuchlin and the treasures of his library; and his ashes now lie in the same city, where he died in 1522. The Reformer, Melancthon, gave to the same university the earlier of those Greek prelections which brought him the admiration of all the men of learning of his day. Much, in like manner, of its after fame does it owe to Camerarius, who, together with the illustrious men we have already mentioned, may be called the fathers of learning in Germany. With such an ancestry, Tübingen has never lost its name as a school, especially for the classic studies and the higher philosophy. It has both a Protestant and Catholic faculty, with about fifty professors or teachers, and, although frequented almost exclusively by natives of Würtemberg, numbers ordinarily from 800 to 900 students. About one-third of these are students of medicine and law, but of the remainder the greater portion are entered as students of theology, and a large number are at all times maintained on a government foundation, the enjoyment of which is obtained solely through merit. The best scholars are selected from the gymnasia, or classical schools, with which Würtemberg is well supplied, and where the lectures to the more advanced classes are delivered in Latin: these are placed in what is termed the "Lower Cloister," where they pass through four years of the most thorough training. A second examination follows, from which the thirty most distinguished alumni are promoted to the foundation in the university, where they enter upon another four years' profound study of the highest departments of philosophy, classical learning, and theology. After this they are admissible to the church, and are commonly advanced from time to time to higher stations

or better cures. Those who have had the advantage of the exhibition, are subject to an "advancement examination" until the age of sixty. As the foundation receives thirty fresh scholars every year, the number supported by the government in the theological curriculum is ordinarily 120, besides the large number maintained from the same source in the lower seminaries.

One prominent characteristic, not only of the Tübingen scholars, but also of the national mind, is a love for speculative philosophy. Slow in thought and ungainly in manner, as the Suabian proverbially is, he nevertheless far outstrips his brother Germans in intellectual power and dialectic subtlety. In Schelling and Hegel, Tübingen has sent forth two who in this age have ventured farthest into the depths of metaphysical research, and headed respectively two schools of philosophy, which for a time divided Germany; whilst in Paulus, Strauss, and Baur, it can also claim for itself the unenviable notoriety of producing the leaders of the three chief divisions of whatever is evil in modern German theology. Baur was the master of Strauss, and received his scepticism from his pupil. He still lives, and, although at a very advanced age, retains his position in the university, whilst in the neighbouring class-rooms a contrary theology is taught by men like Beck, Landerer, Palmer, and, until very recently, by the learned and truly estimable Schmid. This system of supplying the bane and the antidote in daily potions, to exercise a mutually corrective influence, is confessedly singular, and is one of the great evils of a state-organisation, which allows no removal on the ground of unsound teaching from chair or pulpit. But if "the Tübingen School" is synonymous with the most insidious forms of modern scepticism, it is also clear that a system of antagonism, such as we have described, will permit no intellectual sluggards, compels independent inquiry, and

cannot co-exist with any belief on mere authority, or hearsay, or blind custom. Tübingen has sent forth a double host,—the one of men powerful for error, the other of champions fitted by the severest discipline for the defence of truth. We are glad to know that the latter is a large and an increasing army. None are so equipped as they for the controversy with that error, in the midst of which they have fought their way to the religious conviction they possess. We remember the remark of a German professor of our acquaintance, “It is a law for devils and ghosts, that they shall go out again by the same road by which they slipped in.” And in strict accordance with this law, the schools of scepticism find already the severest antagonists in the hard thinkers that are bred in their own midst, and will most probably be compelled to retire before the very intellectual power through the instrumentality of which they were first evoked. We make no quarrel, therefore, with the scholars of Tübingen for prosecuting their philosophical researches, and cultivating their intellectual powers with such intensity; but we await with hope the introduction of a purer Christian philosophy, which shall be summoned to the service of the truth, and shall contribute the more conspicuously to exhibit the perfect impregnability of Christian faith.

There are few of our recollections of Stuttgart more agreeable than that of our intercourse with the poet Knapp. Born at Tübingen, near the end of the last century, this simple-minded man has spent youth and age in converse with Nature in some of her most lovely aspects, and in yet more hallowed intercourse with Nature’s God. His four years at the university were years, he says, of peril; nevertheless, he was preserved. Conz, the poet and professor, encouraged his poetical talents; Hofacker, the great preacher, led him to a more intimate knowledge of the gospel. And ever since that time, poetry and piety, blended in a happy

harmony, have found in Albert Knapp a true and devoted representative, who has held forth from year to year the torch of truth, and in its service presented Germany with the sweetest of its devotional lyrics. His stay at Kirchheim is evidently a period of his life to which his mind often reverts. There, amidst the most exquisite scenery, he was wont to spend happy hours with the excellent Duchess Henrietta, the mother of the queen, and on mountain-top or shaded glen, in view of the grandeur and loveliness of creation, to pour out many of those sweet communings of his soul which are most treasured by the lovers of sacred verse.

We would fain describe—but it is altogether beyond our power—the kind of intercourse we enjoyed with this venerable and interesting man. His *personnel* is the reverse of whatever a stranger is likely to preconceive. We were forewarned on this head; and yet were not prepared for the large frame and unwieldy bulk that advanced towards us as the sacred lyrist of Germany. There is genius in that soul, we know, but it never fires the eye: a choice spirit dwells within, but it spreads no beauty over the countenance: love verily boils over and flows through a hundred channels from that heart, but it needs the interpretation of charity to read a smile in those mounting cheeks. Nevertheless, those cheeks wear a smile at every moment, we acknowledge it; and though the voice is husky and interrupted with asthmatic breathings, the words which flow from that mouth are full of softest cadence, and the thoughts they embody glow with true poetic warmth. Knapp invited us to be often with him, called us his son, invented for us a poetical name, and admitted us to all the intimacy of a genuine Suabian friendship. We first saw him in his own home, cared for and affectionately tended by his daughter. Next we met him by his own appointment at a fixed spot in a certain street, and spent a while in listening as we moved along,

now walking, now pausing for breath, to his discoursings on German poetry, on Lessing and his followers, and the un-Christian spirit of much that is most admired in the imaginative poetry of his country. A third time, he would show us one of his favourite spots, and with gradual step we ascended together a height near Stuttgart, whence, as the sun was drawing towards the horizon—for the poet knew to choose the hour when nature would be at her loveliest, we enjoyed a view of hill and vale, town and village, garden and vineyard, field and forest, which was truly fitted to harmonise with a poet's soul. As we entered a lane which led to the ascent, a little girl sprang forward from a garden to put into the poet's hand a garland she had wreathed; at another turn, a boy advanced with his bow and respectful greeting, knowing that he too would receive his few *kreutzers*, and with that a blessing from the dear old pastor. There were several such,—the children, doubtless, of his parishioners,—who know his affectionate ways, and like to feel his hand upon their head, whilst he stops to ask them some kindly question, or say some appropriate word. Nothing can exceed the cheerfulness of our poet friend. He seems ever the same, filled with every good disposition, and always seeking to amuse whilst he instructs. He has a peculiar fondness for strange plays upon words, arch and humorous remarks, enigmatical allusions, and what are termed “Sua-bian rubs,” all profoundly difficult to one who hears through the medium of a foreign language, and is a stranger likewise to the national habits, the proverbs of the people, and their mythic lore. He was always ready to assist, however, and, constituting himself our professor, set us right, if ever our weak German betrayed us into a grammatical error or uncouthness of expression. One last characteristic we hope will not be misinterpreted to the poet's prejudice:—he is fond of his own verse, and glad to find its merit appreciated.

We cannot blame him, however. In the midst of all, there is a beautiful humility and simple child-like spirit, which admires, not because it is his own, but because it is truly admirable. His muse, too, is not yet silent ; but, as age ripens, his lyre is attuned to yet holier and sweeter strains. Through the eighteen years he has lived at Stuttgart he has sought, he says, to dedicate every power and all his time to the service of his Saviour, and allowed poetry only to lie as a bouquet upon the laden desk. In our last walk together he told us much of his feeling on this subject. He felt that every garland he might yet wreath must be laid upon the altar of the sanctuary, and every tone of his harp give back the praise of Him that inspires it.

Our episode on Knapp leaves us no room to speak of the other poets, living or dead, of Würtemberg. Besides Schiller, we have Hauff, Herwegh, and Schwab, Kerner and Mörike ; the two latter remarkably characterised by that pure *naïveté* and originality of thought, of which the German poets furnish such fine examples ; and Hölderlin, the school-fellow and companion of Schelling, himself a great philosopher and noble poet, who wrote under impulses of a kind of frenzy, and whom Schiller used to call his "*liebster Schwabe*." Let us only mention one more, still living, whose name is amongst the best known by our own countrymen,—we mean Uhland, the fellow-townsmen and friend of Knapp,—whose exquisite poems must ever be cherished amongst the choicest gems of German literature.

T. H. G.

TIMES OF REFRESHING.

CHAP. III.

TOWARDS the end of the fourth century there came up a voice from the Eastern side of the Cottian Alps, that indicated a fresh upspringing of life and truth. God had prepared His instrument, and in due time he came forth to do His work. His name was Vigilantius,—a good and noble name, not unsuited to the character of him who bore it. He was a man of excellent mind and character; one who had travelled much, and seen, with his eyes fully open, the condition of the Church, from Western Gaul to Eastern Syria. His soul burned within him at the wickedness and superstitions which everywhere prevailed in that body which still called itself the Church of Christ. He could not be silent at the enormities which overflowed on every side,—enormities which heathenism never surpassed,—enormities practised and patronised by Bishops, and Popes, and Fathers.

This man of God, like Luther in a later age, spoke boldly out, and his words went forth from his native Aquitaine till they reached the farthest East. He attacked clerical celibacy, the adoration of dead saints, the intercessory power of the martyrs, the reverence paid to their bones and dust, the pretended miracles wrought by their relics, which men such as Ambrose were not ashamed to countenance. These, and many other such evils, he boldly denounced, not sparing Jerome, the greatest superstitionist of the age. For this faithful testimony Rome has enrolled him a heretic.

Jerome, in his shameless reply, heaps all manner of abusive epithets upon his opponent, as was his wont in

every controversy. But these are of little moment to us, save as additional evidence of the character of the "saint" who uttered them. That which is of more importance to us is the fact which comes out in the course of his treatise, that the whole diocese in which Vigilantius lived was "polluted" by his doctrine, so that it was vain to attempt the extirpation of the heresy. Through the teaching of this faithful witness a whole province was led into the knowledge of the Gospel of Christ. The word of the Lord grew and multiplied; and in these mountainous regions truth found for itself a home when banished from that which arrogated to itself the name of "the Church of God." In these rocky solitudes the persecuted remnants of the second and third centuries had taken refuge. There they had maintained the life which had elsewhere died out, and the purity which had been elsewhere totally corrupted. And now God sends down His Spirit and raises up a new witness among them. The testimony of that witness is blest, and the work is wondrously revived. The shower falls, and the weary heritage is refreshed. Let the reader not forget that these very Alpine glens were the abodes of the Waldenses in after years; and that it is the country of Vigilantius that is now rising up before Europe, ready to do battle as of old with the Church of Damasus and Jerome.

Just about this time Britain gave birth to one whose name has come down to us linked only with error and schism. Going forth from his native Wales, Pelagius preached everywhere the doctrine which he conceived was needed most by a dead age and a formal Church. We have none of his writings. His opinions are only known to us by the refutations of his adversaries. Did he then really hold what he is said to have done regarding man's native goodness and the non-necessity for the Spirit's work? It is hard to

condemn without hearing ; and there are many things which incline us to think that he has not been quite fairly dealt with. We are not disposed to credit Jerome's word at any time ; but we feel peculiarly disinclined to do so when we read as the climax of that father's arguments, that this heretic could not but be gross and stupid, seeing it was upon Scotch porridge that he was fed.* We have no wish, however, to defend Pelagius throughout, more especially as Augustine, a more trustworthy father than Jerome, has brought like charges against him. Yet we cannot help feeling as if he were the John Wesley of that age,—a man full of zeal, and who, with many errors, still seemed desirous of publishing to dying fellow-men the Gospel of the grace of God.

Shortly after this there comes before us another name, which for ages has been identified with flagrant heresy—Nestorius of Antioch. As in the case of the other “heretics,” so in his, the sentence pronounced against him is one which we have no means of verifying. The error charged upon Him was, that of making “two persons” in Christ, thereby making void His real personality as the Incarnate Word. The accusation was in all likelihood untrue, deduced from some one expression, perhaps by men whom he had offended, and who wished to ruin his character and destroy his influence. The head of his offending was his refusal to call Mary “the mother of God.” He was willing to call her the mother of Him who is God, but Θεοτοκος he refused to call her. For this the Fathers and Councils in those days branded him as a heretic ; and Rome, in subsequent ages, has perpetuated the charge,—nay, has had such strange power over Protestants as to induce them to endorse the charge. There can be no doubt that the crime

* “Stolidissimus et Scotorum pultribus prægravatus.”—Jerome's Works, vol. iv. p. 20. Proem. to his Com. on Jeremiah.

of Nestorius was his refusal to worship Mary, and to give her titles which his soul abhorred as blasphemy.

God seems to have used Nestorius as His instrument for quickening the languid zeal of multitudes in his day. He was a man of fervent spirit and of a large heart. His soul yearned over the multitudes that knew not God; and through him and his followers, missions were set on foot in different regions of the globe. Through his agents China first heard the Gospel, and thousands were gathered to Christ in that dark land through his instrumentality. While the Church called "catholic" was becoming the Church of Mary, instead of the Church of Christ, and hugging the shadows of worse than pagan superstition then resting over her, Nestorius was sending out the ambassadors of peace to distant lands. It was no common shower of blessing that then came down; and of the work then done we have the remains to this day in the Nestorian Churches of the East.

The history of the Paulicians is one of no common interest. It extends over centuries, beginning with the seventh, and indicates how graciously God was still giving times of refreshing in the midst of wide-spread apostasy on the part of those who called themselves the Church of Christ. Much of His mighty power did the Holy Spirit put forth in that age, and many wonderful works did He do in behalf of the persecuted remnant who held fast the grace of God. The story is too long to be here recounted. But it is worthy of our search—far more so than much of that on which Church-historians dilate and dwell. Of the tens of thousands that then bore noble witness to Christ, but a few names have been preserved. Not till the day of the Lord shall we learn how glorious was that time of refreshing, which, ere it passed away from the Paulicians, had raised up successors to the Albigenian Churches.

The story of Succat (St. Patrick) and his labourers ought to have been noticed before. In him we find a true apostle, coming forth in the name of the Master, and bearing the tidings of the Master's death and love to a nation of dark barbarians. He is one of the many examples of the wonders which God does by single labourers—individual men, who, without means, and without machinery, and without the help or countenance of others, go forth to work for Him in simple faith. It was a marvellous shower that then came down on Ireland. A nation seemed born in a day.

No less wonderful is the story of Columba and his fellow-apostles, in a succeeding age. The records of their work are scanty; but the fragments handed down to us show "what manner of men" they were, and what manner of work it was that they wrought for Scotland and its isles. The Spirit of God was with these men, and from the bare rock of Iona he sent out a light which radiated into the farthest recesses of British darkness.

Then there rose up Huss in Bohemia and Wicliff in England,—that double star of the fifteenth century. They did not rise alone. They were merely the brightest of a host of stars which then appeared in the dark firmament. Huss left behind him memorials of his faith and zeal which remained uneradicated, till Luther appeared to carry on the work which the Martyr had begun. Of Wicliff, yet more might be told. The work wrought for England in his days was a vast and noble one. We mistake it utterly if we look on it as feeble or partial. It was indeed crushed. But it had spread on every side, till, as has been truly said, every fourth man in the land was a Lollard. We know but little of that age. But it was no stinted measure of refreshment that was then given. It renewed the whole island for a time, and only passed off for a season in order to show itself

more gloriously in the succeeding age of Latimer and Cranmer, and Wishart and Knox.

The Reformation was a glorious day for England. But we are apt to forget that she had glorious days before,—days whose results have not indeed been so abiding and so universal; but yet days which tell of refreshing,—days which intimate how often, even from the first century, God has visited this island,—days in some respects as wondrous and as blessed as those which the last three centuries have witnessed.

There are many, even intelligent Protestants, who in their inquiries into the Christianity of Great Britain, hardly look beyond the Reformation. They seem to think that then true religion began and that the pure gospel then sprang up as a new thing in the land. Or if they go timidly backward a little farther, they speak of Augustine as Britain's missionary, the first enlightener of her darkness! A most pernicious error, which, borrowed from Romish histories, was dropped into the passive ears of youth. Augustine preach the gospel! How could he? He did not know it himself. Augustine bring light to us from Italy! He himself possessed nothing but darkness. He brought us Popery,—that was all he did. He was the Apostle of Rome,—sent to impose its semi-paganism upon a people that spurned it,—sent with Romish fetters to bring the free Church of this island into bondage. We hear sometimes of Britain's debt to Augustine. Britain's debt! She owes him nothing but forgiveness for the wrongs and woes he wrought her. The pure gospel had been in Britain for ages before; and a purer gospel it was than Augustine knew. True, its purity had been dimmed,—the life of godliness was not what it once had been; but still the British Church to which Augustine came, had preserved more of the life and the truth of primitive ages than he

possessed. It is time that we should dislodge from our memories the Popish fables concerning Augustine's mission, which have done such grievous injustice to the name and character of our early fathers.

Once and again did God visit these lands with "times of refreshing." Shower after shower descended. Many a mighty harvest has been reaped from these fields of ours during these eighteen hundred years. Their records have perished, so that it is but little that we can write of these days. But there are many fragments of British Church-history remaining which show that God has never wholly left our shores. He left Palestine when He had gathered in His harvest there, and did not return. He left Asia when He had done His work there, nor has He returned. He left Greece, He left Africa, after a few ages of blessing. But He has not done so with us; and eighteen centuries of blessing declare the wondrous love with which God has loved us. And out of what land have such multitudes of souls been drawn to Christ as out of this far-off rock of the ocean? Our testimony for Christ dates from the first century. Our protest against Popery dates from that hour when Augustine set foot upon our shores. It has not been the protest of three centuries; but the protest of twelve hundred years.

H. B.

MY BROTHER'S KEEPER.

CHAPTER XIV.

So th' one for wrong, the other strives for right.—*Faëry Queen.*

‘WELL what sort of a time did you have among the quakers yesterday?’ said Thornton when he saw Hulda at breakfast next morning.

‘O it was splendid!’ said Hulda with a pause of delight in the midst of buttering her roll.

‘What was splendid?’

‘O everything! And they were so kind to me—and I like Mr. Raynor so much! And the flowers—O Thornton, did you see mine that I brought home? and the camellia? That is Rosalie’s; and it was the very prettiest one they had; and I told Mr. Raynor so, and yet he would cut it.’

‘Perhaps he did not agree with you.’

‘O yes he did. I thought he was going to cut a white one at first, and then he chose this.’

‘Then he did not choose the prettiest, to my fancy,’ said Thornton.

‘Why you don’t know anything about it!’ cried Hulda. ‘I never saw such a beauty, and I don’t believe you ever did.’ And away she ran to bring ocular proof of the camellia’s perfectness. No further argument was necessary; for admirable kind and culture had produced one of those exquisite results that the eye is never satisfied with seeing. Thornton silently took it in his hand to examine.

The flower was hardly at its full opening, two or three of the inner petals being yet inclined towards each other

with a budlike effect; but the rest lay folded back in clear glossy beauty, leaf beyond leaf—each one as spotless and perfect as the last. They were of a delicious rose-colour—not very deep, but pure, perfect, as a tint could be; and the stem, which had been cut some inches below the flower, spread out for it an admirable foil in two or three deep green leaves.

‘Is n’t that beautiful?’ said Hulda, who stood at her brother’s side with her little hands folded and her little face in a rival glow.

‘Exquisite!—I never saw such a one! Alie, I must get you a plant. I wonder what is its name, if it has one.’

‘There was a little stick stuck in the flower-pot,’ said Hulda, ‘but I don’t know what was on it.’

‘Do you know?’ said Thornton looking towards his sister.

‘I think, I believe it is called Lady Hume’s blush.’

Thornton laughed.

‘This is probably a variety called Miss Clyde’s blush. It might be, at all events. Methinks the quakers performed some conjuration over you, Hulda,—it seems that you have suddenly become a little conductor—a sort of electric machine, charged by one party with a shock for another.’

‘Shock!’ said Hulda. ‘But I don’t think I have shocked anybody.’

‘That is the very thing.’

‘But what do you mean by Miss Clyde’s blush?’ said Hulda, who was getting excessively mystified.

‘Ask her what she means by it,’ said Thornton. ‘Alie just ring your bell, will you? Tom—did you get my sword-belt?’

‘No sir—Jansen said he thought all the Captains was a conspirating agen him; and if they were Generals instead he couldn’t do no more than he could,’ he said.

‘And what did you say to that?’

‘I told him he was a considerable piece off from doing more than he could, yet, and I guessed he better send the belt home to-night and no more about it.’

‘I guess so too, or there will be more. I shall dine out of town to-day, Rosalie, so you need not wait for me.’

‘You will come home to tea?’ she said as she rose and followed him out of the room.

Her look half inclined him to come to dinner as well, but he only laughed and said,

‘You had better not ask me, because if I come I may bring you your hands full.’

‘Bring anything in the world that will make home pleasant to you,’ she said.

‘O it’s pleasant enough now — and you are charming; but ‘variety’s the spice of life,’ you know Alie.’

‘A most unhappy quotation in this case,’ she said with a slight smile. ‘That life must miserably dwindle and deteriorate which is fed upon spice alone. Suppose you try brown bread for one night?’

‘You shall try red pepper for one night, to pay you for that,’ said Thornton. ‘Why shouldn’t you and I be like two birds of Paradise,—sitting up in a tree and eating pimento berries?’

‘What a naturalist you would make!’ said his sister smiling. ‘You would condemn the birds of Paradise to as unwholesome diet as you give yourself.’

‘Unwholesome according to you.’—

He stood by her, he hardly knew why; but perhaps half in curiosity to see what she would say; for the changing light on her face told of varied thoughts and feelings. But when she spoke her voice trembled a little.

‘“The kingdom of heaven is as a man travelling into a

far country, who called his own servants, and delivered unto them his goods. And unto one he gave five talents, to another two, and to another one; to every man according to his several ability; and straightway took his journey.

“After a long time the Lord of those servants cometh and reckoneth with them. And so he that had received five talents, came and brought other five talents, saying, Lord, thou deliveredst to me five talents: behold, I have gained besides them five talents more. His Lord said unto him, Well done, good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy Lord.”

‘Thornton—shall we live that life together?—the life of heirs of heaven?’

‘I wish you would let go of my hand,’ said her brother, with a motion as if he would shake it off. ‘What upon earth is there in that immense quotation to call forth such a sorrowful face?’

‘Because,’ said his sister with a gush of tears, as she took away the offending hand; ‘because “*there was one servant who went and digged in the earth, and hid his lord’s money*”—and to him it was said, “*Depart.*”’

The tears were quickly wiped away, and again she looked up at him.

‘Do you think it is very kind to take the edge off my day’s pleasure by such a prelude?’ said he.

‘Yes—very kind—to say what should do it.’

‘By what rule of sisterly affection?’

‘The rule in my own heart,’ she said with a sigh. ‘What is a day’s pleasure that my love should balance it against eternal life? There is time now to obey—an inch of time,—and then “the angel shall lift up his hand to heaven, and swear by Him that liveth for ever and ever, that there shall be time no longer!”’

‘And how do *you* know that I need time for anything of the sort?’ said Thornton, when his silence had taken to itself displeasure. ‘What right have you to suppose, that because “after the most straitest sect of our religion I do not live a Pharisee,” I am therefore excluded from all its benefits? You see I can quote Scripture too.’

She did not raise her eyes, though the sudden flush on her brow told that his words had struck deep. And it passed away, and she said—betaking herself to Bible words as if she would not trust her own,

‘“I speak as unto wise men—judge ye what I say.”—*“Every man that hath this hope in him, purifieth himself even as He is pure.”*’

And Thornton turned, and left her.

How he despised himself for what he had said! for the implication his words had carried! And against her—upon whose sincerity he would have staked his life.

Christian, in the Slough of Despond, struggled to get out, but always on the side next the wicket gate; while Pliable, having no desire but to be at ease—even in the City of Destruction—was well pleased to set his face thitherward to be clear of the Slough.

Thornton soon got rid of his discomfort,—only the remembered touch of his sister’s hand was harder to shake off than the hand itself. Perhaps on the whole he was not sorry for this. In pursuit of bird’s nests he was swinging himself over a precipice, with but one visible stay—and that stay the hand of a frail girl. He knew he had hold of her—or rather that her love and prayers had hold of him; and with little thought of her life of watching and anxiety, he swung himself off and rejoiced in his freedom.

He resolved, as he walked up Broadway, that he would go home to tea that night, but not alone,—anything was better than a tête-à-tête with his sister; and besides, as he

remarked to himself, 'it will never do to let her suppose there are no men in the world but Henry Raynor.'

Rosalie sat alone in her room, half reading, half dreaming in the warm spring air of the afternoon, — now applying herself to her book and now parleying with some old remembrance or association; sometimes raising her eyes to take in most unworldly pleasure from nature's own messengers, and then trying to bring her mind back to more fixedness of thought. But a sunbeam that at length fell on her book wound about her its silken bands of spirit influence; and laying her folded hands in the warm light, Rosalie leaned her head back and let the sunbeam take her whither it would.

It went first athwart the room to little Hulda; who tired with the day's play had curled herself up on the bed in childish attitude and sleep. Her doll lay there too, not far off; and a little silk scarf with which she had been playing was still about her, and answered the purposes of adornment more perfectly than ever. On all the sunbeam laid its light hand tenderly; and then it darted to the table beyond where stood the little sleeper's dish of flowers. The Camellia was there too, and one look Rosalie gave it; and then turning her head towards the window and leaning it back as before, her eye again followed the sunbeam but this time upward,—her face a little graver perhaps—a little more removed from earth's affairs, but no less quiet than it had been before. And proving the truth of George Herbert's words,

“ Then by a sunbeam I will climb to thee; ”

it was not long ere her mind had laid fast hold of the promise, 'Unto you that believe, shall the Sun of Righteousness arise, with healing in his beams.'

The ray had done its work and gone; and 'the lesser light' had held forth her sceptre, when Martha Jumps,

whose head and shoulders had been enjoying the afternoon out of an upper window, suddenly rushed into the room.

‘Here’s a whole army of men coming!’

‘Americans, I hope,’ said her mistress.

‘La sakes, ma’am! to be sure they aint British! and when I said army I only meant the short for multitude. But it’s such an unaccountable start for the Captin’ to come home to tea and bring people with him!’

‘He so seldom brings a multitude, Martha, that I wish you would go and tell Tom to make sure that we have bread and cake enough for tea.’

‘Let Tom Skiddy alone for that,’ said Martha,—‘he has a pretty good notion of his own how much bread it takes for one man’s supper, and if he hasn’t I have; and I’ll go tell him as you say; but you see if there aint a multitude. To be sure one hat does look like a dozen—viewed out of a three-story, but I wouldn’t wonder a bit if there was five. And Miss Rosalie, you mayn’t be conscious that your hair is walking down the back of your neck. There—they’re knocking at the door this blessed minute!’

But in spite of this announcement, Rosalie’s eyes and mind went out of the window again, so soon as she was alone. For sorrow had put her out of society, and joy had not as yet offered his hand to lead her back; and the gentle spirit which had once amused itself with and among people, now found their gay words but as the music of ‘him that singeth songs to a heavy heart.’ Her mind found rest and comfort in but one thing; and these visiters—‘they knew it not, neither did they regard it.’ And she must not only go among them, but must go as a Christian—to take and maintain that stand alone. To do nothing unbecoming her profession,—to be neither ashamed of it nor too forward in making it known,—to be ready always to speak the truth with boldness and yet with judgment.

For a moment it tried her,—for a moment she shrank from the trial; and then throwing off care and weakness upon the strong hand that could provide for both, she got up and lit a candle and began to arrange her hair.

Thornton came upstairs and through the open door so quietly while she was thus employed, that the first notice of his presence was its reflection in the glass before her.

‘Well little Sweetbrier,’ he said, ‘beautifying yourself as usual. Are your pricklers in good order?’

‘As blunt as possible.’

‘Defend me from wounds with a blunt instrument!’ said Thornton.

‘As dull as possible then, if you like that better.’

‘I do not like it at all my dear, only that you never were and never will be dull. There is nothing dull about you,’ said he passing his hand over her hair.

‘Whom have you got down stairs?’

‘Nobody.’

‘Nobody! O I am so glad. Then Martha was mistaken.’

‘Martha is as often mistaken as most people; but when I said nobody, Alie, I did not speak very literally and not at all prospectively. I should have said nobody to signify, at present. A few entities to come and a few nonentities to pave the way. So the rearrangement of your hair will not be thrown away.’

‘O it would not have been thrown away upon you,’ she said. ‘But where did you pick up such a peculiar name for me?’

‘What, Sweetbrier?—out of the abundance and aptitude of my fancy, my dear. I never attempt to argue with you, that I do not scratch my own fingers and find out how particularly sweet you are—and the sweeter the more provoked. So you see—Come!’

ON A GREAT NORTHERN DIVER (THE IMBER),

SHOT IN IRELAND, AND FOUND TO HAVE AN
INDIAN ARROW THROUGH THE NECK.

I STAND in fancy on the plains
Beyond th' Atlantic's farthest flow,
Where stretch the Indian's wild domains
To regions of eternal snow.

There stalks the Moose, there prowls the Bear;
And now, when winter's reign is o'er,
The birds with clamour fill the air,
And seek their wonted haunts once more.

Now, o'er the desert's vast expanse
The wand'ring savage tracks his game:
His weapons rude,—a bow, a lance,
But matchless in his practised aim.

See how the startled birds arise
From yonder lake! "Now, try thy skill:"
Home to its mark the arrow flies,
And quiv'ring strikes, but fails to kill.

Conscious of pain, and urged by fear,
The Imber's flight has known no check.
Is this a dream? The bird is here:
And, see! the arrow in its neck.

A thousand leagues, by sea and land,
The wounded bird the arrow bore,
Then fell beneath the sportsman's hand,
A trophy from a foreign shore.

The Indian arrow—framed of bone,
With copper tipp'd—reveals the place
Where range, upon their deserts lone,
The savage Attabasca race.

Oh, wondrous gift ! to gird the earth,
To follow in its course the sun,
From frozen regions of their birth,
O'er all the fertile earth to run.

Yet Heaven its gifts on *all* bestows,
To meet the evils none can cure :
The power to fly from ill to those—
To others, courage to endure.

Methinks, in this poor bird I find
A type of one transfixed with grief,
Who, leaving former joys behind,
Flies o'er the world to seek relief.

No change of scene the wound can heal,
Though time perchance may ease the smart ;
Yet still condemned through life to feel
The arrow rankling in his heart.

S. C.

SUNSHINE, DAYLIGHT, AND THE ROCK.

SUNSHINE and Daylight had one day a serious difference of opinion about a rocky waste, over which their course led them.

"I am not severe," said Daylight, fixing her clear, generalising grey eyes on the Rock. "If I cannot, like some people, see nothing but what I *wish* to see, no one ever accused me of blackening any one's character. I have known that old rock more years than I care to mention; not a jagged edge, nor a whimsical cranny, but I am intimately acquainted with, and I do not hesitate to say, that a more barren, unmitigated rock I seldom meet with. I do not slander it. I only say, it is nothing more or less than a rock."

Sunshine said nothing, but peeped round the shoulder of her cousin's grey cloak, until the smile of her soft eye met the eye of a little blue violet, which, by dint of hard living, had contrived to obtain a secure footing in a crevice of the old rock; and a flutter of joy passed through the blossoms and leaves of the violet, and communicated itself to a tuft of dry short grass, which had ensconced itself behind. The red and grey cups of some tiny moss and lichens, which had crept into corners here and there, next drank in her kind glances, and fancied themselves wine-cups at a feast. Here and there specks of colour and points of life revealed themselves, and as they looked, expanded.

By this time Sunshine had folded Daylight to sleep on her warm breast. Many weeks had passed when, one quiet afternoon, Daylight again came that way, and glancing critically around, she murmured to Sunshine, "Where is the old grey rock you were so sanguine about?"

Sunshine was silent: her motto being, "Not in word, neither in tongue, but in deed and in truth;" and at length Daylight's quiet eyes awoke to the fact, that the grassy knoll where flowers — tiny rock-plants indeed, but still

flowers—and mosses lay dozing unawakened by her sober tread, was none other than the rock she had known of old. And she said meekly, “Truly, I find that one way to create beauty is to perceive it.”

Then an angel, who was hovering near, on his way back from some message of mercy (for the angels never linger till their messages are given), sang softly, “Love veileth a multitude of sins.” And the old Rock answered in a chorus, through its moss-threads, and lichen-cups, and leaves, and blossoms, “And under the warm veil spring a multitude of flowers.”

E. C.

THE MINSTREL IN THE DARK.

“AH!” said the Bird, imprisoned in a darkened cage, “how unhappy were I in my eternal night but for those melodious tones, that sometimes make their way to me from afar and cheer my gloomy day! I will myself repeat these heavenly notes, like an echo, till I have stamped them upon my soul, and then they will bring comfort to me in my darkness.”

Thus spake the little warbler, and soon had learned the airs that were sung to it with voice and instrument. This done, the curtain was raised; for the darkness had been purposely contrived to assist in its instruction.

Oh, Christian! how often dost thou complain of overshadowing grief and of darkness resting upon thy days! And yet, what cause for complaint, unless, indeed, thou hast failed to learn wisdom from suffering? For human life is but a temporary veiling and obscuring of man’s immortal spirit, that it may be attuned to those happy and heavenly melodies which, when the fleshly curtain falls away, it will for ever sing in light and glory.

From the German of Jean Paul Richter.

OURSELVES.

THE SENSES.

OUR knowledge of external nature is derived through the medium of the Senses. Each sense has an appropriate organ, by which its functions are fulfilled. Each organ consists of two portions: one part has reference to external objects; the other, to our interior nature. As the objects of sense differ in their nature, have different properties, and are governed by distinct laws; so the organs of sense are constructed, not only with reference to the nature and properties of sensible objects, but with deference also to the laws which they respectively obey. Thus, the eye is adapted from the transparency of its cornea to admit the light: its interior structure has strict relation to refraction and the other laws of light. The outer ear is fitted for receiving the impulses of sound; the inner ear to transmit them, in accordance with the capabilities of vibrating substances: and so of the others.

On the other hand, that portion of each organ which has reference to our sensations, consists of a *special modification of the nervous structures*, by which it is adapted for a definite range of impressions, and to which it is limited. Hence, the retina, the expansion of the optic nerve in the globe of the eye, though acutely susceptible of the stimulus of light, has almost no feeling: the two nerves which endow the tongue with taste and feeling, are as distinct in function as they are in their origin: and so of the rest. Beside the duty of receiving impressions, it is also the office of this part of the organ to conditionate them for transmission to the immediate seat of sensation. For the impressions made

by light, sound, hardness, heat, and the other qualities and properties of external objects, are not forwarded in their crude state to the brain; but they are here modified and refined, and so fitted to be sent up to the sensorium. What the change is, by what subtle process it is brought about, and how the modified sensation is transmitted, no research has hitherto discovered. Though the successive links in the chain of occurrences can be distinctly noted, and their order of succession accurately pointed out; yet, whether the message is symbolised, or shaped into cypher, or written in short-hand, or done by telegraphic notices, as if through galvanic wires, and all such ingenious theories, physiology cannot now, and probably never will, be able either to confirm or refute.

The Sense of Touch.—Almost every part of the body is supplied more or less with nerves of sensation, and is, therefore, capable of feeling; but by a special arrangement of the nervous structures the *sense of touch*, the highest form of tactile sensibility, is limited to certain parts, and the feeling of other parts to certain conditions. Hence it is that the heart and lungs, the viscera of the abdomen, and the organs of motion, if in a healthy state, not only exist, but fulfil their functions without our consciousness. They are not intended to be organs of sensation, and their sensibility is really only a collateral effect of their having sensitive nerves. The sense of touch is confined to the skin, and to the cavities and passages lined by it.

The skin consists of two principal parts: the *epidermis*, or *cuticle*, and the *corium*, or true skin. Between these there is a thin layer of agglutinated cells, called the *rete mucosum*, the different tints of which give different shades of colour to the human species.

The *corium*, or true skin, is a firm, dense membrane, which invests the whole person. It is formed of an inter-

texture of tough fibres, among which are interspersed multitudes of minute blood-vessels and nerve-filaments. Its outer surface is studded with small eminences, called *papillæ*, which are best seen, and especially with the aid of a magnifying glass, at the ends of the fingers, where they are large and regularly disposed. It is more than probable that each of these *papillæ* is furnished with a separate filament from the nerves of feeling; and, as the sense of feeling is most acute where they are found in the largest numbers, their aggregate may be considered as forming the *organ of touch*. The surface of the *corium*, thus rendered very sensitive of outward impressions, whether made by the contact of foreign bodies, or variations in temperature, or even by the atmospheric air itself, would be a source of perpetual uneasiness to us, if it were not defended by the *cuticle*, or scarf-skin. This, the outer tegument, having neither nerves or blood-vessels, is wholly insensible. It is strictly moulded on the external surface of the true skin, dips into its numerous foldings, and corresponds with all its elevations and depressions. Its density varies very much, it being greatly thickest on the palms of the hands and the soles of the feet; and thinnest on the lips, the tip of the tongue, and ends of the fingers. This difference of thickness is not incidental, or occasioned by pressure or friction, though by either of these, if long continued, it will become hard and dense; but it is congenital, and is, therefore, to be referred to that providential care which adapts the structure of parts even to their prospective purposes. The simplest impressions made on the organ of touch are caused by the *hardness* or *softness* of various substances. As these produce distinct amounts of impression on different parts of the sensitive surface, we are enabled to ascertain, in some degree, their relative sensibilities; which, however, a simple experiment has enabled physiologists to determine much more accurately,

and to construct a scale showing the differences. If the points of a pair of compasses are armed with suitable pieces of cork, and traced gently on the skin, they will make very different impressions in different places. By a little attention it is not difficult to notice the smallest distance at which, in any particular spot, they seem to be separate : a lesser distance than this gives rise to the feeling of a continuous line ; and by then bringing the points still nearer together, the sensation becomes that of a single point. The results obtained in this way vary greatly from each other. Some persons seem to have four or five times as much sensibility as others. A delicate skin and an active mind recognise the smallest distances. The tip of the tongue is more sensitive than any other part of the body ; the middle of the back is the dullest ; the extremes differ almost sixty-fold. Assuming the average for the tongue as = 1, and arranging the scale of sensibilities inversely as the numbers increase : that for the point of the forefinger is 1·2 ; for the other fingers, 1·8 ; at the thumb side of the two first fingers it is 3·3 ; on the back of the same fingers, 4·4. The red parts of the lips give 3·1 ; the white parts, 4·6. The other parts of the face are still duller. On the surface of the eyelids it is 7·9 ; on the cheeks, 9·4 to 9·9. The feeling of the foot is very inferior to that of the hand ; but these are much more sensitive than either the fore-arm or leg, and so are the elbow and knee.

This sensibility is capable of being greatly increased by habit and improved by education. The puddy child poking its coral, and almost everything else it can come at, into its mouth, is not only learning its alphabet, and getting the rudiments of natural knowledge at the tip of its tongue and the ends of its fingers, but it is educating them for more accurate apprehensions. By successive lessons the amount of feeling is toned and adjusted to the purposes of life. The ordinary

rate of sensibility thus obtained is, as might naturally be expected, that which best adapts the different surfaces for ordinary use: but the range of increase seems to be almost unlimited. The Bengalee spinning-women are said to be able to distinguish the difference of the threads of the cocoon with a delicacy almost incredible. Persons devoid of hands have educated their feet and toes until they have become as useful as the hands and fingers of others. Even the dull back may be trained to serve the purposes of the deaf and dumb. A near relation of the writer of this paper lost his hearing when he was about four years old. As he retained the power of uttering sounds, and partially of modulating them, he could even in the dark converse tolerably well with those who understood his language; and who, using his back as a tablet, wrote on it with the finger their questions and replies. The alleged power of distinguishing colours must surely be referred either to some variety in the texture of the materials, or to a slight yet appreciable difference of temperature which different colours produce.

The amount of pressure which any body at rest produces on a sensitive surface affords some tolerable information of its *weight*; and the most susceptible parts of the skin detect most readily the smallest differences: hence, if an ivory ball is allowed to run down the cheek towards the lips, it seems to increase considerably in weight. If, however, the balancing power of the muscles is superadded, it increases greatly the value of the test. The unsupported is, at least, twice as accurate as the supported hand.

Our impressions of differences in *temperature* bear, of course, very intimate relation to the heat of our own bodies: and although the skin affords sufficient information for practical purposes, yet it does not determine a real temperature as the thermometer does. For the degree of heat to which the surface has been previously subjected

influences greatly the measure of our estimate. Thus, if the hand is dipped into a basin of water the heat of which is 104° , and directly after into another at 90° , it will appear at first to be cold; but if the heat of the first is 68° , then the same fluid will seem to be lukewarm. The conducting power, however, as well as the specific heat of different substances, modifies very much the impressions they produce. If a series of rods, of the same form and size, but made of different metals, are placed in the same water-bath, or in the open air in the same room, they seem to the hand to have very different temperatures: those which conduct the heat from us the most readily appear to be the coldest; and *vice versâ*. To the same cause is to be referred the difference in the values of different kinds of clothing: the worst conductors make the warmest garments.

Our judgment of the *form*, and our estimate of the *roughness* and *smoothness* of various objects, are influenced a good deal by the feeling of that part with which they are in contact; but the impressions which they produce are rendered much clearer if the sensitive surface is allowed to glide over the substance to be examined. With this assistance the blind easily recognise very minute differences, and read so readily properly prepared tablets.

We have already seen that the *sense of touch* is limited to certain parts of our bodies; and that it is accurately toned and adjusted by habit and use for the ordinary purposes of life: and also, that the inconsiderable amount of feeling possessed by the vital organs, and other parts of the body, best fits them for their respective duties. Hence we may infer that every deviation from these conditions is unnatural: that all uneasy sensations are exceptions to a general rule: and that though we are susceptible of pain by a law of our nature, yet we are not condemned by the same law to suffer it. Suffering is no more a natural state of our

feelings, than disorder is a natural state of our bodies. It is the exception of a rule ; which, however, though it is only a casualty, if duly heeded, is a wise and merciful provision, to point out existing, and to warn us of more impending dangers. A faultiness of function would hardly rouse us to seek for a remedy, if it was not for the concurrent uneasiness. It is commonly by this that our attention is awakened, and by it we are guided in ascertaining the seat and amount of the mischief. The carelessness with which we often regard those uneasy sensations that precede actual suffering, is not an uncommon cause of its aggravation. If we disregard the warning, we can hardly hope to escape the penalty. The uncomfortableness of indigestion, the effects of wrong eating or over-drinking, long precede the painful attacks of gout ; but the transgressor will not amend. The headaches and vertigos of the too industrious student point out his danger, yet meet with little regard. The over-anxious merchant is told by his tongue, long before he becomes the subject of incurable disease, that he is wrong ; but he will not listen. How often the fluttering moth gets singed by passing and repassing through the attractive candle-flame, before it plumps finally into the melted fuel ! The edge of the thunder-cloud throws sufficient gloom to warn us of the coming storm. There was a finger-post at the stile over which you got into Bye-path Meadow, which told you that the way led not only to Doubting Castle, but to Trouble and Sorrow, to Head-ache and Heart-ache ; only you would not stop to read it. We are careless till we suffer, and then we upbraid the *nature of things*. We need not be unjust because we have been unwise.

P. S.

REVIEW OF THE MONTH.

THE frost which commenced in the middle of January, and continued till the 24th of February, will long be remembered in the annals of British meteorology. We are not aware that the temperature fell so low on any night as it did in the beginning of January 1854 (see "Excelsior," vol. i. p. 156), but with constant snow on the ground, and with a thermometer seldom rising to the freezing-point, the trial to animal life was very severe. The sparrows lay dead in the squares of London, and in the country creatures as hardy as the rooks fell victims to cold and hunger united. In different parts of the island cases occurred of persons frozen to death; and owing to bronchial and kindred complaints, there was a serious increase on the bills of mortality. Nor was it only on land that the deadly chill was felt. In the Edinburgh "Witness" of February 24, it is mentioned, that on the beach at Portobello cart-loads of the *Solen siliqua*, or edible razor-fish, and large quantities of the *Macra stultorum*, or fools' cockle, lay dead, the frost having penetrated into their sandy retreats at ebb-tide. The editor adds, "It is probable that both species will be less common on our coasts than heretofore for years to come; and their wholesale destruction by a frost a few degrees more intense than is common in our own climate, shows how simply, by slight changes of climate, induced by physical causes, whole races of animals may become extinct. It exemplifies, too, how destruction may fall upon insulated species, while, from some peculiarity of habitat, or some hardiness of constitution, their congeners escape. There are two species of *Solen* in the Firth *S. siliqua* and *S. ensis*, but we have not seen, on the present occasion, a single dead individual of the latter species; and of at least four species of *Macra*, the *Macra*

stultorum seems alone to have suffered." At Deal ice was floating about in the English Channel; and at Dover, a friend informs us, that in the moon-lit nights the fishermen went out and brought ashore boat-loads of enormous conger-eels, which they found floating on the surface in a state of stupor. According to the fishermen, "they had come up to look at the moon;" and, as in the case of the burrowing molluscs at Portobello, it would be curious to know the reason why the congers were more affected than other fishes. Nothing showed the intensity of the cold more strikingly than the length of time which was required for the powerful thaw to penetrate. For upwards of a fortnight after it began, many houses in the capital remained with their water-pipes firm frozen; and it is not likely that the present generation will witness a recurrence of the anomalies, grave and gay, of so extreme a season.

After a reign of nearly thirty years, the Emperor Nicholas expired at St. Petersburg on the 2d of March. There can be little doubt that in his person a great impediment to the peace of Europe is removed; but there is a Russian policy, independent of the life of any Czar,—the policy of Peter, Catherine, and Alexander, as much as Nicholas,—a policy of first weakening and then devouring every neighbour. And for the security of Europe and the welfare of the world, we should like to see cut off Cronstadt and the Crimea,—the iron claws which cater for the great Muscovite crustacean.

The net revenue paid into the British Exchequer during 1854 was 56,737,133*l.*; and the expenditure was 59,946,192*l.* During that year 323,112 of the inhabitants of Great Britain and Ireland emigrated, being at the rate of nearly a thousand a-day, of whom the majority (192,993), went to the United States. In England, on January 1, 1855, there were 839,164 paupers receiving parochial relief.

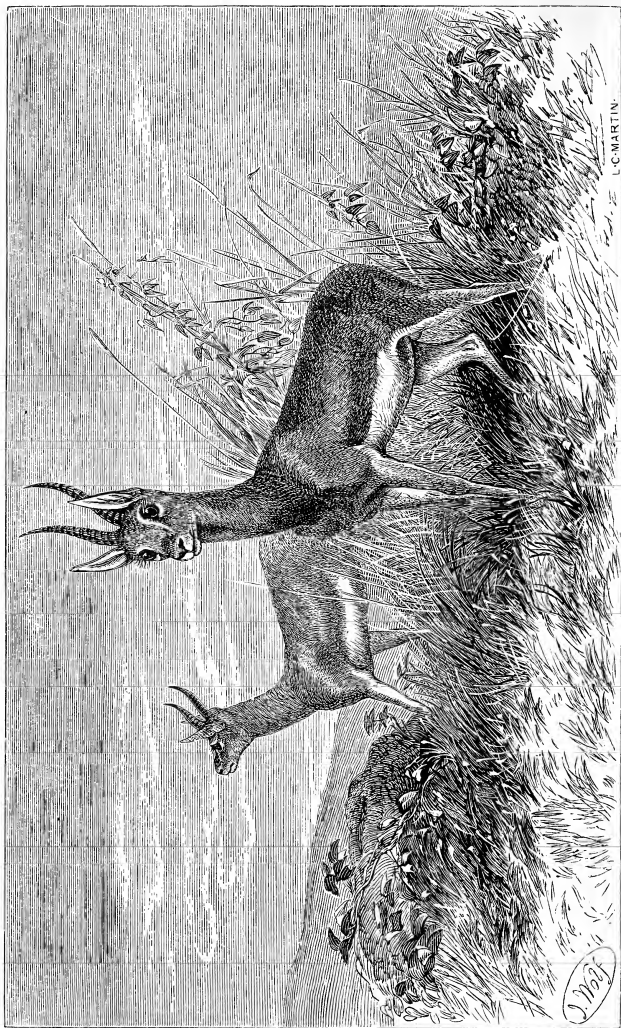
Dr. Stenhouse, of St. Bartholomew's Hospital, has published a valuable lecture on the use of charcoal as a disinfectant. Charcoal has long been employed as a filter to free water of its impurities; Dr. S., with a similar view, employs it in filtering air. He has contrived a respirator of powdered charcoal, the wearer of which may breathe with impunity the foulest or most infected atmosphere; and in regions where the air is tainted, as in pestiferous intertropical districts, or where the miasmata of ague, yellow fever, &c., abound, he recommends the use of charcoal ventilators. "Effluvia and miasmata are usually regarded as highly organised, nitrogenous, easily alterable bodies. When these are absorbed by charcoal, they come in contact with highly condensed oxygen gas, which exists within the pores of all charcoal which has been exposed to the air even for a few minutes: in this way they are oxidised and destroyed." As a sort of *experimentum crucis*, Dr. S. covered over a dead cat with a layer of powdered charcoal, about two inches thick, and kept it in his laboratory a year, but no perceptible odour escaped. The application of this simple expedient to the lower decks of ships, to churchyards, hospitals, &c., is abundantly obvious.

We have lying before us an elaborate volume, "Bengal as a Field of Missions. By M. Wylie, Esq., First Judge of the Calcutta Court of Small Causes." As the production of a layman, of a resident, who has had rare opportunities for observing and judging, and of a Christian philanthropist, who has brought to his survey a mind of eminent comprehensiveness, acuteness, and candour, this work is invaluable. It will be eagerly welcomed and earnestly pondered by those who value exact information, and who feel the transcendent importance of the subject.

From Messrs. Johnstone and Hunter we have received an edition of the Scottish Psalms, accompanied by upwards

of two hundred tunes, any one of which, by means of a new and ingenious contrivance, can be brought under the eye on the same page with any one of the hundred and fifty psalms. Of course, this clever expedient may be applied to any other version of the Psalms, or any hymn-book.—Encouraged by the success of their beautiful edition of Dr. John Owen, we are glad to see that the same enterprising publishers are preparing to issue, on a similar plan, the works of John Howe, with the Memoir by Henry Rogers revised.

Since the pen dropped from Johnson's kingly grasp, we have had few worthy Lives of the Poets. Practically, Keats and Shelley are still without record, and an unskilful biography was more injurious to the memory of poor Pollok than the unkindest reviewal could have been. A terse memorial, elaborated after the fashion of his own exquisite lyrics, would have done more for Campbell's fame than the three heavy tomes which now oppress his sepulchre; and if Wordsworth's renown has sustained no detriment from a similar indiscretion, it must be because the reader is so soon sent to sleep under the mesmerising influence of prosaic minutiae. Nor will the success of Moore's Journal, with its puns and bon-mots, encourage any following bard to "attempt" his own life. With all our love and tenderness for Montgomery's memory, we were alarmed by the portentous scale on which his history was projected; and the perusal of the two volumes already published has verified our fears. There is *matériel* enough for some fifty or a hundred pages of interesting narrative; but spread over a surface so disproportionate, it has become extremely flat and prolix. A subject which would have made a charming cabinet-picture may appear quite absurd on one of Haydon's vast canvasses; and of all men really good and gifted, few occur to our recollection less adapted for a Boswellising biography than this mild and gentle minstrel.



The Gazelle. (Antelope Dorcas.)

MY BROTHER'S KEEPER.

[The reader must imagine some changes of time and place. Rosalie and her sister are staying at a farm-house in Massachusetts. Thornton has gone off to the camp with his company, and, having been nursed through a severe sickness by Henry Raynor, he has now joined his sisters at White Oak.]

IF Thornton had never before seen the perversity of human nature he had abundant cause now. Much as he had wished to be with his sister, often as he had resolved that for the future she should have no reason to complain of him—that he would be at least part of her happiness,—it seemed as if when the trial came every current set the wrong way. He had wished to prove to her that he was as good as other people, and he was worse than himself.

Rosalie spent her strength upon him most unweariedly ; though less in doing than in watching,—in trying to amuse him, in hoping that he would be amused. But her efforts met with little success. A cloud of moodiness had settled down upon Mr. Clyde, and he seemed in no mind to come out of it. Indeed his attempts at coming out were rather unfortunate, and were as apt to land him in a fit of impatience as anything. His mind was not fitted to bear up against weakness of body—or was itself out of order ; and either craved old associates or the other extreme of something new. Nothing satisfied him, not even Rosalie's watchful love ; though he was more ready than of old to appreciate its working ; but if he shook off his moodiness at all, it was generally with such a fling as sent a reminder of the mood into the face of every one present—after which he relapsed tenfold. And though quite able to ride or to walk

in moderation, he was with difficulty persuaded to do either ; and nature's sweet influences had small chance to try their hand upon him.

'Are you sure it would not do you good to go out?' Rosalie said one day as he sat by the fire. 'I am so sure that it would.'

'What use?' said Thornton. 'I can imagine pigs without the help of eyesight.'

'You cannot imagine sunshine,' said his sister, with a playful attempt to make him raise his head and look out.

'No—nor feel it if I go. There is nothing to see here.'

'But there you are mistaken. There is a great deal that is worth seeing.'

'Probably—to canary birds,' said Thornton.

'O there are a great many birds here,' said Hulda. 'Sparrows, and robins, and'—

'Take yourself off to their neighbourhood then—or keep quiet,' said her brother. 'You must not talk if you stay here. Why don't you go and pick up apples with Martha as you did yesterday?'

'Because Martha's talking to Tom Skiddy,' said Hulda, 'and I don't like to.'

'When they have talked each other into a wedding they will be easy,' said Thornton.

'Ask Jerusha to go with you Hulda,' said her sister. 'Take my little basket and fill it for me, and by and by I will walk with you.' And as Hulda left the room Rosalie came and knelt down by her brother.

'What is the matter with you dear Thornton? You will never get strong in this way, and it troubles me very much.'

Thornton put his arm round her and drew her head down upon his breast.

'You are not more tired of me Alie, than I am of myself.'

‘I am not tired of you,’ said his sister weeping, — ‘you know that.’

‘I should think you might be. Why don’t you go and take care of Mr. Raynor, and leave me alone?’

She was silent a moment.

‘Why do you ask me such a question?’

‘For the pleasure of hearing you answer it.’

‘That would not make me happy.’

‘Then what would?’

There was answer even in the slight movement of her head before she spoke.

‘What would?’ Thornton repeated.

‘To see you what I call happy, I believe,’ said his sister.

Thornton drew a long breath—or rather breathed one out—as if that were a thing he might whistle for sooner than get; and for some time there was not a word spoken. Then Thornton began again.

‘I used to wonder sometimes, in those long hot nights when I lay sick in my tent, that he did not administer poison instead of medicine. And sometimes I almost wished that he would—then you would be taken care of, and I should be in nobody’s way.’

‘I am sure he never suggested that last idea,’ said Rosalie.

‘No, to do him justice,’ said Thornton, ‘he never mentioned your name unless I did. And he took as tender care of me as if I were his own brother—or perhaps I should say yours. There was no make believe in it though. Yes Alie, I was forced to give up my dislike, and to agree to all the praises you would have spoken had you dared. He is a man to trust.’

There was pleasure in hearing these words,—but for the cold, unenjoying tone, Rosalie would have felt it strongly. As it was, the pleasure was qualified; and her quiet

‘I am glad you think so,’
told of both feelings. She waited long for Thornton to speak again, but his lips did not move; and slowly she arose and went to give Hulda the promised walk: her voice and eye following the child’s merry pranks, and all her thoughts left at home. She could hardly have told whether the walk was long or short, and most like her brother could not; for when Rosalie again entered the sitting-room he had not stirred from his former position—had not even changed the hand which supported his head. Rosalie came up and laid her hand on it, but the soft touch called forth no words, and in silence she sat down to await the coming in of tea. The meal passed with equal taciturnity; Hulda went to bed, and Rosalie sat down as before—her eyes apparently seeking counsel of the little wood fire, which flashed into their bright depths with great vivacity. How grave they were, how thoughtful! catching none of the fire’s dance.

‘It strikes me,’ said Thornton suddenly, ‘that you and I have done thinking enough for one night, Alie. What say you?’

‘I don’t know.’

‘Why don’t you know?’

‘I suppose,’ she said, with one of her fair looks up at him, ‘I suppose if we have been thinking unprofitable thoughts, it might be well to give the mind some better refreshment before the body takes its own.’

‘What do you call unprofitable thoughts?’ said Thornton.

‘Fruitless ones—or such as bearing fruit are yet shaken off too soon, before it be ripe.’

‘You have covered the whole ground for me,’ said Thornton. ‘I had better begin again. I wonder if yours have been worth a silver penny?’

‘Not to you—and some of them more than that to me.’

‘Suppose you were to indulge me with the hearing

thereof,' said Thornton—'just by way of a lesson in fruitful thinking.'

'Truly,' said his sister, 'my best thoughts were not my own, but drawn from a little hymn of Wesley's.'

'Give us the hymn then,' said Thornton. 'Are you the only alchymist who can fetch gold from thence?'

'The gold is of an ancient stamp,' said his sister sadly, 'and little thought of in the alloyed currency of this world; for it bears the impress of the first commandment—not "*Cæsar's image and superscription.*"'

" Lord, in the strength of grace,
With a glad heart and free;
Myself, my residue of days,
I consecrate to thee.

" Thy ransomed servant I
Restore to thee thine own;
And from this moment live or die,
To serve my God alone."

Thornton looked at his sister while she repeated these words,—felt that she had found the gold, that it was in her hand—and knew that his own was empty. And why? He was ready to say it was so because so it was to be; but those words came back to him again—

" With a glad heart and *free*"—

and to none had Rosalie's face given more strong assent and effect.

'Do you like it, Thornton?' she said, drawing up closer to him.

'Seems like pure metal, my dear,' he answered carelessly. 'I presume my ready money would scarce exchange for it without a pretty heavy discount.'

Rosalie looked at him, as if she thought and truly that just then he was counterfeiting; but his face gave her no

invitation to speak, and her eyes went back to the fire. When she turned to him again, however, and somewhat suddenly, he was regarding her with a grave abstracted sort of look, as if from her his thoughts had taken a wide range: not into the pleasant regions.

‘What can you possibly be musing about, Thornton?’ she said.

‘There are a great many things about which I could possibly be musing, Alie.’

‘Only that you were not apt to muse at all.’

‘I doubt I am getting into bad habits then—you are such a muse-inviting little object.’

‘Am I?’ said Rosalie smiling. ‘What ideas do I suggest?’

‘Various ones of human-perfection.’

“*The spirits of just men made perfect,*” Rosalie said. ‘That will be a fair thing to see!’

‘For those that see it,’ said Thornton with some bitterness. But he wished the words unsaid—her quick look up at him was so humble, and at the same time so full of pain.

‘What makes you speak so, Thornton?’

‘What makes you look so, Alie?’ he said with his old light tone. ‘It is not possible that you think *all* men need perfecting? The gentleman who took care of me so lately, for instance—how *could* he be any better than he is? I am afraid you undervalue him.’

‘O Thornton! I cannot jest with you after such words.’

‘Jest! no,’ he said, but something in her eye checked him,—he turned away and rested his head on his hand as before. Rosalie came and laid her hand on it again—laid her cheek there too, but he did not move.

‘What troubles you, brother?’

‘Why do you suppose that anything does?’

She did not answer—as being needless, and he added,

‘ You had better go to bed, Alie—take care of yourself, my dear, if you cannot of me. I feel as if I had you in trust.’

‘ Only me ?’ she said sorrowfully.

‘ Only you !’ said Thornton rousing himself, for the implication was not pleasant. ‘ You are a reasonably precious trust, some people think. And I shall have to account pretty strictly for all the pale cheeks that you carry back to town.’

‘ “*And every one of us shall give account of himself to God,*” ’ she answered in a low voice, her lips touching his forehead. But she waited for no reply, and left the room.

For the first time since he had been there, Thornton went softly in to look at her when he went up stairs as she lay asleep ; as much perhaps because he was tired of himself, and tired of remembering his own existence, as anything. And certainly if contrast could make him forget, the end was gained.

Existence had been no burden to her, and life no failure—what though it was crossed with anxieties and disappointments,—they were all according to that higher will to which hers was submitted. Life could be no failure,—the purpose of God must stand, and she wished none other.

It was a strange point to reach, Thornton thought, as he stood watching her calm face, and felt that whatever shadows lay there came not from discontent. Could he ever reach it ? was it not rather of nature than of grace ? It was easier for a woman—with her gentler spirit and its few outlets. There came up before him the image of one whose nature was at least as strong as his own, in whom manhood was not better grown than Christianity ; but he put it away and looked at Rosalie. And then with a bitter wish that he were like her—or like anybody in the world but himself, he

stooped down and softly kissed the lips whose repose he so much envied.

They stirred a little, though he caught no words, and with a long sigh Rosalie folded her hands upon her breast as if she were making a last appeal. Then they relaxed and lay quiet as before, and the lips were still; and Thornton went away with a quick step, feeling that from her his questions could get no answer such as they wished. Any excuse—any belief which would throw the responsibility off himself, he could bear,—he could bear to be unhappy and discontented, so it touched not his own omissions. If he could have persuaded himself that he was *necessarily* restless and ill at ease, it would have gone far towards curing the evil.

‘What nonsense!’ he repeated to himself again and again—‘I never could quiet myself down to her temper, if I tried all my life’—and then he remembered that he had never tried for one day.

This was not the way to get to sleep, however, as he sagely remarked; and having banished all grave thoughts with such vigorous efforts as he would not have bestowed upon acting them out, sleep followed—unbroken till Sunday morning had dawned, and its atmosphere of rest lay over the wide landscape.

There were sounds astir—but all sweet, all soothing. The twittering of the birds, the tinkle of the cow bells as their four-footed wearers wound slowly along the meadow-course of the brook,—a hum of voices from the chip yard, where Martha and Tom were comparing notes with Jabin,—and nearer still a voluntary from Hulda—who standing out in the sunshine sang her morning hymn with birdlike freedom and enjoyment. When another voice joined hers, and gave strength and clearness to the tune and distinctness to

the words, Thornton closed his window and betook himself with great earnestness to the business of dressing.

But though that business was finished with much elaboration, Thornton would not go to church ; and Rosalie staid with him. Everybody else went, and the house was left in utter solitude ; with windows closed and doors bolted, and Trouncer the old bull-dog lying in the porch with his nose between his paws.

Rosalie persuaded her brother to come out to the edge of the dell and spend the morning there ; where the brook's soft rush at their feet and the bird notes up in the air, were all the interruptions. She had her Bible in her hand and sat down to read ; but Thornton sat leaning against an old hickory tree, with his eyes sometimes shaded by his hand and sometimes by an unseen cloud. And so they remained ; with the sweet Sabbath bell sounding forth in the distance and answered by another still further off, until the last ring floated away on the pure air and all was still.

Rosalie had closed her book for listening, and now sat with closed eyes, as if too many senses were disturbing. Her brother watched her, unconscious of his gaze or that he had even raised his head.

Her face was at rest, as of one asleep after a weary world ; for the bells with their suggestions and associations had half done sleep's work. But strong effect was given to the very delicate tinting of her face and its too delicately drawn lines, by those very grave ones in which the mouth was set,—that had not relaxed. Yet as Thornton looked it did relax—and with a slight trembling of the lips there came one of those tearful smiles that just shewed itself and passed away.

‘Rosalie !’

How the face changed, how the weary look came back

he saw as she turned towards him ; her eyelashes yet wet with the drops of that sun-shower.

‘ Do you see that brook ? ’ Thornton said.

‘ Certainly.’

‘ Wouldn’t you like to follow its course out into the open sunlight ? ’

‘ I have done so many a time.’

‘ Is it a pretty walk ? ’

‘ Pretty and thoughtful both, to me.’

‘ Take me up the stream of your thoughts from the sunshine that was upon your face just now.’

She looked at him and then down at the brook.

‘ It would be a more thoughtful walk than the other.’

‘ No matter—take me. Whence came the sunshine ? ’

Again she looked at him, and away from him, but the eyes filled as she answered,

‘ “ *Hitherto ye have asked nothing in my name: ask, and ye shall receive, that your joy may be full.* ” ’

Thornton was silenced. If he had expected Bible words it would not have been these ; and he spoke not again for some time. His sister sat looking down at the brook as before ; and it rippled and ran along, and flung its foam hither and thither with a wild hand.

‘ Do you believe that, Rosalie ? ’ he said at length.

‘ Surely ! ’

The look was brilliant.

‘ Have you never asked for what you were wishing yesterday ? ’

Her eyes fell, and her lips could form no answer.

‘ Then why is it not done ? ’ said Thornton, with an effort to keep his own firm.

She paused a moment, as if to steady her half choked voice, ere she answered. ‘ Because I have not waited

patiently, I believe. Because, "*to them gave Jesus power to become the sons of God, even to them that believe on his name.*"

Thornton was silenced again, and his sister sat still for a few moments with such a wavering play of thought and feeling upon her face, as was like the shadowy leaf-tossed light upon the brook. And then after one glance at him, coming quickly to him and almost before he was aware, her arm drew him down to a place by her side, and her voice spoke words for him that bowed down his heart like a bulrush. And with the belief the power came. He was a changed man.

* * * * *

'How long are we going to be here, Alie?' said Hulda as they sat at tea.

'I do not know—you must ask Thornton.'

'How long?' Hulda repeated, looking at him.

'I do not know.'

'But that's very funny!' said Hulda.

'I am not sure but I shall go to New York for a week or so before you do, Rosalie,' said her brother.

'What for?'

'O sundry things. I must see Marion—give the required promise and make her redeem her own.'

'Not till I come?'

'No, not that. But there are other matters to arrange. At what time in the future is the Quakerage to be blessed with a new queen?'

'I am sure I know not,' said his sister as composedly as she could.

'I believe,' said Thornton, 'that in a voluntary change of dynasty it is usual for the reigning power to withdraw to another court, — else might the new comer be branded as a usurper. And I am not sure that it is best for you to give

Marion any lessons in the science of government. She rather needs guardianship herself.'

'She will have it now,' Rosalie said; the warm flush of joy and thankfulness coming over her face.

'Better than she once could, I trust,' said Thornton gravely. 'O Alie! my dear child! what a guardian *you* have been!'

'Not I—' was all she could answer; and Hulda looked wonderingly from face to face, and saw the one not less stirred than the other.

'I was not so selfish as I seemed,' Thornton said, when they left the table and stood musingly before the fire. 'I knew you gave up a great deal for me, but I did not know how much. I could not, without knowing Henry better; and by keeping him at a distance I partly kept off the belief of some things that concerned him.'

'Who is Henry?' said Hulda, who had been watching for some word which she could understand.

'Your friend Mr. Raynor. Of whom his mother justly remarks, there is but one in the world.'

'I wish he would come here,' said Hulda. 'I want to see him very much.'

'So do I,' said Thornton. And bringing a chair to the fire he sat down and took Hulda on his lap.

'How would you like to live with him, Hulda?'

'Live with him!' cried Hulda. 'What all the time?'

'Thornton'—Rosalie said.

'Be quiet Alie, and trust me for once. Well Hulda?'

'I don't know what you mean!' said the child with a very puzzled face. 'I *couldn't* leave Rosalie.'

'Put Rosalie out of the question.'

'But I shouldn't want to leave you, now,' said Hulda, her eyes looking up to his with all the enjoyment of trust.

She little knew how straight both look and words went

to her brother's heart, nor guessed the meaning of the quick breath he drew in that moment of silence.

'I think we must arrange a compromise, Alie, don't you? How would you like then Hulda, to live half the time with Mr. Raynor and half the time with me? Or would you rather live half the time with Rosalie and half with Marion?'

'But then there'd be nobody to take care of Rosalie,' said Hulda. 'And if I lived with you and Mr. Raynor there'd be nobody to take care of me.'

'You know your lesson sufficiently well,' said Thornton laughing. 'What do you say, Alie?'

She did not say anything; but sat there on a low seat by the fire, reading histories in its bright play, until Hulda was ready to go to bed; and then went with her, and returning softly sat down as before.

'Why don't you answer my question about the Quakerage?' Thornton said, moving his seat close to hers. 'Am I bound to learn it first from another quarter?'

'I cannot tell you what I do not know myself, dear Thornton.'

'Yes, but upon whose decision does your knowledge wait?'

'I cannot decide upon anything to-night—and I would rather talk on some other subject. Rather think of the end of life than of its way.'

'You are not well,' Thornton said, putting his arm round her and drawing her head down upon his breast.

'Not perfectly—or else I am a little tired.'

He stroked her forehead and stooped down and kissed it, and then sat looking at her in silence. But after a few moments she looked up and smiled.

'I believe I am tired—that need not hinder our talking.'

'What shall we talk about, precious one?' he said.

‘What were you thinking of, with your eye upon the fire? What did you see there? an ideal presence?’

‘No,’ she said with a faint colour—‘at least not when you spoke to me. I was thinking of the journey through the wilderness. “*Thou shalt remember all the way which the Lord thy God led thee these forty years in the wilderness, to humble thee, and to prove thee, to know what was in thine heart, whether thou wouldst keep his commandments or no. And he humbled thee, and suffered thee to hunger, and fed thee with manna, which thou knewest not; that he might make thee know that man doth not live by bread only, but by every word that proceedeth out of the mouth of the Lord doth man live.*”’

‘And then?’ Thornton said.

‘Not much else,’ she answered with that same little flush. ‘I was thinking how even Moses desired to see the promised land in this world.’

‘What has come over you to-night, Alie?’ said her brother. ‘When did this world’s land of promise ever make you forget the better country?’

‘It is easier given up in the wilderness than on the borders of Canaan. But if the Lord hath said, “*Let it suffice thee concerning this*”—good is his word which he hath spoken. “*The Lord is thy life, and the length of thy days*”—how true that is!’

‘Rosalie,’ said her brother with a look that was both fearful and wondering—for she had raised her head again, and was eyeing the fire in the same intent and abstracted way; ‘you are tired, you are not well. Let me carry you up stairs now, and to-morrow you may talk more of these things.’

‘I believe I am tired,’ she said again, but without moving,—‘my mind feels tired. Tell me something to rest it. Words of comfort are so sweet from you.’

‘ And my knowledge of them is so small compared with your own, Alie. You must not let even part of this be true of you, dear—it was all true once of me.

‘ “ My people hath been lost sheep—they have turned them away on the mountains : they have gone from mountain to hill, *they have forgotten their resting-place.*” ’

As if a cloud had rolled away from before her eyes, so did Rosalie look up at him,—a child’s very look, of quietness and peace.

‘ I will not forget it,’ she said. ‘ “ *For thus saith the Lord, the Holy One of Israel : In returning and rest shall ye be saved ; in quietness and confidence shall be your strength. And the work of righteousness shall be peace ; and the effect of righteousness, quietness, and assurance for ever. And my people shall dwell in a peaceable habitation, and in sure dwellings, and in quiet resting-places.*” ’

The words were spoken clearly and strongly, though rather as if thinking than speaking ; but as she rose then to go up stairs the colour faded swiftly from her cheeks, and laying her hand on Thornton with a confused look, sense and strength failed together.

Thornton carried her up stairs and laid her on the bed, and toil-hardened hands tried their gentlest powers about her ; but when at length paleness and unconsciousness yielded to their efforts, it was to give place in turn to a brilliant colour and a fevered sleep.

In silence Thornton sat by her through the night,—remembering with intense bitterness the years of her society that he had shunned, and feeling that whatever might be the effect of this sickness he could not say a word. The women went softly about the room, attending to the fire and bathing the poor sleeper’s forehead and hands ; but whatever words they spoke were scarce whispered out, and Rosalie’s quick breathings fell on her brother’s ear without interrup-

tion. How he wished her away from there,—with her own physician, in her own home—with other friends within reach. Such skill as could be found in the neighbourhood was called in, and pronounced her disease to be a slow fever; more tedious than dangerous unless it should take some special type, but requiring constant care and watchfulness. And until the day came streaming in through the windows, Thornton hardly removed his eyes from her face.

How cold the daylight looked ! how cheerless ; and yet the sun shone brilliantly clear, and the tufts of autumn leaves with which the trees were spotted shewed their gayest tints ; and the birds sang and twittered their merriest. But the contrast was lost upon Thornton, for his eye and ear took little note of anything but Rosalie ; and the morning came on, and the women went softly in and out, and he scarce noticed them nor heard their low consultation.

At length Mrs. Hopper came up to him.

‘ Mr. Clyde,’ she said, ‘ the very best thing you can do is to go where you can be o’ some use. You can’t do her the least bit o’ good stayin’ here, and that poor little soul down stairs ’ll cry her eyes out afore long, if there don’t some one speak to her.’

Thornton sprang up instantly and left the room, remembering that Rosalie would never have forgotten anybody as he had forgotten Hulda : even in her deepest sorrow.

‘ How far, how very far she is on the way which I am but beginning to tread,’ he thought as he went down stairs.

Hulda was in the sitting-room, crouched down on the floor in one corner, pouring out a flood of sorrow that was exhausted only in its tone,—there was no stay to the tears. And when Thornton raised her up in his arms and tried all his powers of soothing and caressing, the child shook all over in the violence of her grief.

‘ They won’t let me see her !’ she cried. ‘ They won’t

let me even go into the room ! And I wouldn't make the least noise—and oh I know *she* would let me !'

'Do you think you could keep perfectly quiet?' Thornton said, putting his face down by hers.

'O yes ! O yes !'

'Then I will take you up there ; but first you must wait a little, for Rosalie would be troubled to see all these tears. I am going to write to Marion to ask her to come here, and you shall sit quiet on my lap till that is done.'

'Do you think she will come!' Hulda said, as she watched the rapid tracing of his pen, and tried the while to seal up her tears.

'I am sure that she will.'

And almost tired out, Hulda lay drooping on his neck until more than one letter was written and folded, and he was ready to take her up stairs.

She kept her promise of quietness,—shed no tears unless silent ones, and sat on Thornton's lap or stood by his side in perfect stillness, as long as he would let her. And when he knew that she ought to be out in the fresh air, and told her so, and begged her to go with Martha,—Hulda's mute distress was so great, that there was no help for it, he must take her himself.

It was a lesson for him, all this,—he began to try his hand at self-denial, and to learn the lesson which Rosalie had so long practised. True his watching eyes could do her no good—both days and nights were passed in the restlessness or the sleep of fever, and often she seemed hardly to know him. But for himself, what comfort anything on earth could give he found at her side. And now he must devote himself to another's comfort—must walk with Hulda and talk to her and bear with her, and keep her as much as possible out of the sick room. He could not in conscience let her be in it, and to send her out with Martha plunged

Hulda into the very depths of grief. Sitting on her brother's lap with her arm round his neck, and probing his distress with her earnest questions,—walking with him—hearing him read, and never failing to bring up Rosalie's name at every turn, she was comparatively cheerful. It was something new for him—something against his whole nature and experience. And nature rebelled. But as if they had been stamped on his mind, checking every impatient thought and word, bidding even sorrow and weariness give place and bide their time, these words were ever before him—

“For even Christ pleased not himself,”—and “If ye love me, keep my commandments.”

If Hulda mourned her sister's illness, it was not because her brother ceased trying to fill her place.

* * * * *

[Accompanied by Dr. Buffem, Mr. Raynor had made a rapid journey to White Oak, and arrived after midnight. But the patient was already beginning to amend. Coming down to breakfast,]

‘All right and sweet and comfortable,’ said the doctor. ‘I may go back to New York as fast as I came; or now I think of it, more leisurely,—being at my own risk. You do not go with me, friend Henry?’

‘No sir.’

‘I think you will be equal to any emergency which may arise,’ said the doctor. ‘And now, my dear sir, breakfast! It's ill travelling without the staff of life.’

‘And if Rosalie goes on steadily improving, when would it be safe for her to return to New York?’ said Thornton, as they took their seats at the table.

‘New York?—fal de rol!’ said the doctor. ‘Don't bring her back to brick walls till she's able to climb 'em. She's seen enough of New York for one while. The minute she can stand alone take her off for change of air and scene

—jaunt about a little—go South, if you like ; but don't let her see New York these three months.'

The doctor mounted his horse and rode away, and the other two gentlemen stood somewhat thoughtfully looking after him. Mr. Raynor spoke first.

'What are you thinking of, Thornton?'

'Doctor Buffem's orders.'

'I will see them carried out,' was the next grave remark.

'You shall, if I have any voice in the matter.'

'Say nothing about it now.' And nothing was said, even before Mr. Raynor went back to New York himself for a week.

But one afternoon at the end of that week, when Rosalie was well enough to sit up in a great chair by her wood fire, and all the rest had gone out for a walk ; that peculiarly quiet step might have been heard on the stairs—if indeed it had made noise enough.

Quietly he went up, and quick, for that was his custom ; but his foot slackened its pace now on the upper stairs, and as it reached the landing-place stood still, and his breath almost bore it company. Martha had gone down a few minutes before, leaving Rosalie's door half open ; and thinking all human ears far away—with the perfect stillness of the house—she was singing to herself in the fading sunlight. Singing softly, and in a voice not yet strong, but with such clear distinctness that the listener caught every word.

He waited till the hymn was finished—waited for another, but it came not ; and still he lingered, as if there were a halo about her he liked not to break. Then a quiet knock at the open door, a quiet word of admission, and whatever effect he charged upon his presence the room looked no less bright to her.

‘Does thy song betoken strength?’ he said.

‘Only weakness—of that kind which craves a strong support—and rests in it, and delights in it.’

‘Wilt thou make use of my strength, such as it is?’ said he smiling. ‘I would fain bestow it upon thee.’

‘Having more than you want?’

‘A little surplus which I should like to see invested.’

‘I should think business might call for it all,’ said Rosalie. ‘How are affairs on Long Island?’

‘In the old state of quiescence. I have left Penn in charge of my department.’

‘For the present, I suppose.’

‘For the present and future both. I am going South.’

‘South!’ said Rosalie. ‘You?’

‘Yes,’ said he smiling. ‘Not without you.’

She looked quickly up at him, then down again, but she heard the same smile in his next words.

‘Will that direction suit you?’

‘Are you so intent upon journeying, Mr. Raynor, that you can talk of nothing else?’

‘Question!’ he said with the same tone.

‘The first letter of a new alphabet is not to be lightly spoken.’

‘That was the second letter; this is the first—When do you expect to come down stairs?’

‘I shall have to consider of that,’ she answered.

‘Let not the consideration be too long, or I may take you away before it comes to an end.’

‘I think you are merry to-night, Mr. Raynor.’

‘With reason.’

‘But if you take up my words so,’ Rosalie said, ‘I shall not be able to say what I wish.’

‘I do not wish you to say anything,’ said he laughing, —‘I merely came to say something to you. For the rest of

the evening you may think and not speak. It is always well to know what one has to do; and this, dear Rosalie, is not to be reasoned against nor reasoned away;—therefore, think not so much as may trouble thee. Goodnight.'

Tom Skiddy stood out in the chip yard next morning, and Miss Jumps in her old position with her hands behind her, stood leaning against a tree and watching him. The frost lay upon every chip and blade of grass to which the sun had not yet paid his morning visit; and lurked in corners and by fences, secure for some time from his approach. The trees were in the poverty-stricken livery of November—some thinly clad, the most not clad at all; and with every rustle of the wind there fluttered down some of the remaining leaves, crisped with last night's frost.

Tom was elaborately dressing out a knitting-needle from a strip of red cedar, while the companion strip lay on a log hard by.

'How would you like to go South, Tom Skiddy?' said Martha.

'Fur south as Connecticut I shouldn't object to,' replied Tom.

'That aint South,' said Martha; 'Connecticut's north when you're in York. I mean South that aint north no-where.'

'Guess likely I shouldn't care about it,' said Tom.

'Well what'll you do supposen the Capting goes?'

'He won't,' said Tom.

'Now how do you know, Tom Skiddy?' said Martha.

'I tell you he won't,' repeated Tom.

'And I heard the doctor say, "Take her South," with my own ears,' said Martha. 'You don't s'pose the Capting'd make any bones about it after that?'

'Can't he send no one else?' said Tom.

'He might, I do suppose,' said Martha,—'that's smart

o' you, Tom Skiddy. 'O' course everybody knows what *he's* stayin' here for. But then if Miss Rosalie's goin' in for the Quakers, I aint agoin' with her—that's one thing. Couldn't—not for nuts.'

'You can find somethin' else to do, I s'pose?' said Tom, taking up the square stick of cedar.

'Most like I can—' said Martha,—'spritly folks like me don't want for work generally.'

'I should think you might,' remarked Tom, measuring the two pieces. 'Nice fit, aint it?'

'Sort o'—' said Martha,—'one of 'em's rough enough for two, and big enough.'

'That's all along o' what's been done to t'other,' said Tom, beginning to work at the square stick.

'Some odds in the stuff, aint there?' said Martha.

'Not much,' said Tom. 'Both out o' one stick. One was further out and t'other further in—that's all.' And Tom whittled away assiduously, while Martha looked on in silence.

'Goin' to make 'em both alike?' she inquired.

'Just alike,' said Tom, 'being knittin'-needles. They're different shades o' red though. I don't care about seein' two things too much alike, if they *have* got to go together.'

'Such as what?' said Martha.

'Horses,'—said Tom,—'and folks. You and I always worked better, Martha, for having such a variety between us.'

'Well, I do' know but we did,' said Martha musingly.

'Just about what you call a fine match, we are, I think,' said Tom.

'Are!' repeated Martha, with a little toss of her head.

'Well, might be, then,' said Tom.

'I don't know about that,' said Martha. 'It mought, and it mought not, as folks used to say where I was raised.'

‘So they did in my town,’ said Tom, ‘but then they always fetched up with “and then again it mought.” I shouldn’t mind making the experiment, for one.’

‘I wouldn’t be venturesome, Tom Skiddy,’ said Martha, with her head a little on one side and leaning against the tree.

‘I’ll risk it,’ said Tom.

‘Well now!’ said Martha.

‘What’s come over you to be so skeery?’ said Tom. ‘You’re as bad as our white colt, that used to always shy afore he went through the bar-place.’

‘I might be worse’n that,’ said Martha. ‘I might shy and not go through the bar-place after all, Tom Skiddy.’

‘That aint the fashion of colts,’ said Tom. ‘They wouldn’t get paid for their trouble.’

‘Well suppos’n I shouldn’t get paid for going through?’ said Martha.

‘You would,’ said Tom, shaving off thin slices of the red cedar.

‘Sure?’ said Martha.

‘Sartain,’ said Tom.

‘Time I was in the house, I know,’ said Martha; and in a very deliberate way Miss Jumps picked up her sun-bonnet and walked off towards the back door.

‘Goin’ through the bar-place?’ said Tom.

‘Maybe,’ returned Martha. ‘You’re so good at making up things—s’pose’n you try your hand at some more.’

* * * * *

If anything could have made Mrs. Arnet deeply unhappy, a letter which she received from her daughter early in November would have done it. Fortunately nature had placed her beyond much risk of that sort, but discomposure she did feel in abundance.

‘You must come here if you wish to see the grand cere-

mony of my life, mamma,' Marion wrote; 'for here it will take place. Thornton wishes it, and so does Rosalie; and I am but too glad to be spared the great New York fuss which you would think indispensable were I there.'

Indispensable!—the word came back from the very bottom of Mrs. Arnet's heart; which was however not so far off as it might have been. But married up there! in a country kitchen!—for what had any farmhouse but a kitchen;—the idea was overwhelming, and yet there was no help. There was time for her to reach them, but not to make them change their plans; and on the whole Mrs. Arnet concluded she had better stay at home. The mere ceremony was not much, and if she went away there would be no prepared fuss against their return; whereas by a diligent use of the time between now and then, she could do much to repair the mischief. Therefore she would not go.

Neither could Mrs. Raynor be present. So she wrote; the journey at that time of year and of her life seemed too much.

'I give thee up, dear child,' she said, 'as fully and freely as if there. I always thought thee too good to be mine alone. But go to thee I cannot; therefore come not for me.'

And so the night before that morning in November there was 'nobody but just their four selves,' as Mrs. Hopper said, in the sitting-room. Hulda had been there to be sure, in such a mixture of pleasure that she was to be with Marion for a while, and sorrow that Rosalie was going away, and joy to think of living always part of the time with her and Mr. Raynor too; that she was sometimes absolutely still, and sometimes flitted about like a very spirit of unrest. But now she had gone to bed and all was quiet. Quiet but for the sweeping remarks of the wind; and they were so general that nobody thought of answering them.

The brother and sister were much in each other's thought ; and could the thoughts have been read they would have told of

—" All that fills the minds of friends
When first they feel, with secret pain,
Their lives henceforth have separate ends,
And never can be one again."

Perhaps the faces revealed so much ; for of the other two present, one was unusually grave, and the other at least as usual. But he was the first to speak ; not in a particularly grave way, but rather playfully—as if willing with a light hand to attach and wind off the long threads of thought in which his companions had enwrapped themselves. And thus he spoke :

——— " Knowledge dwells
In heads replete with thoughts of other men ;
Wisdom, in minds attentive to their own." "

' Which would prove us all sages,' said Miss Arnet.

' Not all—' said Mr. Raynor. ' My attention at least was not turned within.'

' Nor mine,' said Thornton.

' No,' said his friend ; ' you have come near disproving the other line :—

" And whistled as he went for want of thought." "

' Why ?' said Thornton laughing.

' You have given the fire so much, so meditative, and so needless attention.'

' So fruitless also,' said Rosalie.

' Very well,' said Thornton ; ' but I have not been so lost in meditation as to miss the glances stolen at us all from under cover of your eyelashes, little Sweetbrier.'

She smiled, but the playful lines quickly composed themselves into graver fashion than before.

‘I am thinking, Alie,’ said Thornton, ‘what you will do without some one to take charge of.’

‘She may take charge of me,’ said Mr. Raynor.

‘You!’ said Thornton.

‘Well?’ was the quiet reply.

‘It is such a comical idea to imagine anybody’s presuming to dictate or even advise any line of conduct to you.’

‘Presuming—yes,’ said Mr. Raynor. ‘I should scarcely call the idea comical.’

‘Well doing it at all, then.’

‘“He that hath no pleasure in looking up is not fit to look down,”’ said Mr. Raynor. ‘You are making me out very unfit for my trust.’

‘I recant then,’ said Thornton, ‘and am quite willing that you should be perfect after your own fashion. I am certainly afraid she will lose the pleasure of fault finding—but I suppose she can live without it.’

Her lips parted in a little smile as if about to speak, but they closed again silently.

‘I am afraid my old simile of the lock of hair must stand Alie,’ said Marion. ‘But child you are tired, and in my judgment ought to go to bed.’

‘My judgment does not say that.’

‘And mine says must,’ said Mr. Raynor.

She coloured a little, and Marion smiled, and Thornton said laughing,

‘You see, Alie—he endorses my words. I am afraid your judgment will stand but a poor chance, after all.’

Even as he spoke, a little stir was heard in the kitchen; and the opening door shewed them not indeed any part of the stir, but the cause of it,—Mrs. Raynor—a very twilight spot of grey silk against the glow of the kitchen firelight. With as little excitement and bustle as if it had been her

own parlour, so did the quakeress come in ; and was met at the third step by her son, his motions as quiet though rather more quick.

‘Thee sees how much impatience human nature hath yet Henry,’ she said. ‘I could not wait to see thy wife till she was ready to come to me, therefore am I here.’

‘And she will not be here until to-morrow,’ he said, leading his mother to where Rosalie stood supporting herself by her arm-chair. ‘The next best thing is visible.’

The heart of the quakeress had but imperfectly learned the quaker lesson ; for in silence she embraced Rosalie and softly replaced her in the great chair, and in silence held out her hands to Thornton and Marion, and gave them most cordial though mute greeting. Then her hand came back to Rosalie and rested caressingly upon her head, and once again Mrs. Raynor stooped down and kissed her.

‘Mother,’ said Mr. Raynor, ‘you forget that Rosalie is not a quakeress.’

‘Nay surely,’ she said. ‘Wherefore?’

He answered only by a glance at the transparent hand on which Rosalie’s cheek rested, its very attitude speaking some difficulty of self-control ; but his mother understood, and removed her hand and took the chair he had placed for her : answering then his questions and putting forth some of her own. Thornton and Marion meanwhile exchanged a few words but Rosalie said nothing.

‘Why does thee not speak, love?’ said the quakeress presently. Mr. Raynor answered.

‘We were talking a while ago upon your favourite theme of Silence mother. What were those lines you used to quote in its defence?’

‘It matters not, child,’ she said,—‘the lines were mayhap written by one who seldom held his peace save in a good cause.’

'Yet they were good, and you used to say them to me?'

'It may be I had done better not,' she said; 'therefore urge me not to say them again.'

'You will let him say them himself?' said Rosalie.

'If it liketh him—' said the quakeress. 'He thinketh not with me on all points.'

His hand laid on hers seemed to say those points were few and unimportant, as with a smile he said—

"Still born silence! thou that art
Flood-gate of the deeper heart!
Offspring of a heavenly kind!
Frost o' the mouth and thaw o' the mind!"

'Spring and winter are struggling for the mastery here to-night,' said Thornton. 'I wish the thaw would extend itself.'

'No,' Mr. Raynor said, 'not to Rosalie's lips. Do not set her talking to-night. Let her sleep—if to that she can be persuaded.'

"He hath a will—he hath a power to perform," said Rosalie with a little smile as she rose from her seat; nor did she look to see the smile that her words called forth, although it were more than her own.

It was a pretty morning's work that Mrs. Hopper's best room saw the next day, and a pretty company was there assembled. Only 'their four selves' again,—with just the set-off of the grey dress and clear cap of the quakeress, and the wonder and interest in every line of Hulda's little face,—with only the back-ground of country walls and hard country faces,—with no lights but the wood fire and the autumn sun. And the room had no ornament but themselves, unless the splendid red winterberries in Marion's hair. But it was rarely pretty and picturesque; and even the fact

that Rosalie must sit whenever she need not stand, rather heightened the effect. Mrs. Hopper said it was the prettiest sight *she* ever saw, and Tom Skiddy made only one reservation,—‘he wouldn’t say that he couldn’t see a prettier.’

It is a melancholy fact that the end of a voyage cannot be as picturesque as the beginning thereof,—whether it be a voyage in earnest, or merely the ‘wearie course’ above referred to. There is no momentary expectation of either storms or sea-sickness, and both are an old story. The waves do not gradually run higher and higher, but ‘contrarywise,’—there is very little *sea on*—if one may borrow a steam phrase, and the water becomes ingloriously tranquil. Unless indeed the fictional craft is to blow up with a grand explosion—and that in Sam Weller’s words, ‘is too excitin’ to be pleasant. In fact the voyage is over *before* the last chapter; and the only thing that one can do, is to pilot sundry important people over the bar, and through the straits, and land them all too safe, on the shores of this working-day world.

Not that as somebody says, ‘people begin to be stupid the moment they cease to be miserable’;—but still, when the course of true love, or of any other small stream, doth run smooth,—its little falls, and whirls, and foam, and voluntary beating against the rocks—its murmurs as a hard-used and thwarted individual—must of course be dispensed with. There is nothing for it, on either hand, but smooth water.

Mrs. Raynor sat alone in her library. Absolutely alone; for though the cat was enjoying himself on the rug, Mr. Penn was enjoying himself elsewhere; or it might be was attending to his duties on Long Island. Even the invariable knitting work was laid aside, and yet Mrs. Raynor busied herself with nothing else,—unless her own thoughts,

or the general appearance of the room—for so might be construed the looks that from time to time went forth on an exploring expedition. With never failing recollection she replenished the fire, even before such attention was needed; and once or twice even left her seat, and with arranging hands visited the curtains and the books upon the table. Then returning, she took a letter from her pocket and read the beloved words once more. It was all needless. The words—she knew them by heart already, and the room was ordered after the most scrupulous Quaker exactness.

The sharp edge of this was taken off by exquisite flowers, an eccentric little wood fire, and a bountifully spread tea table; where present dainties set off each other, and cinnamon and sugar looked suspicious of waffles. The silver glimmered with mimic fires, the plates and cups shone darkly in their deep paint and gilding; the tall sperm candles were borne aloft, but as yet unlighted. Even the sad-coloured curtains hung in softened folds in the soft fireshine, their twilight tints in pretty contrast with the warm glow upon the ceiling. As for the flowers, they hung their heads, and looked up, and laid their soft cheeks together, after a most coquettish fashion—as if they were whispering; and the breath of their whispers filled the room. A fair, half-revealing light found its way through the bookcase doors, and rested upon the old books in their covers of a substantial antiquity, and touched up the lighter adornments of such novelties as the Quakeress or her son approved. The clock in its dark frame of carved wood went tick, tick, with the most absolute regularity, and told whoever was curious on that point that it was six o'clock.

Then Rachel appeared.

‘Will thee have the candles lighted?’

‘I thank thee, Rachel, not yet.’

‘Does thee intend to wait tea even till they come?’

‘Surely,’ said Mrs. Raynor. ‘But ye had better take tea down stairs, if so be ye are in haste.’

‘Nay,’ replied Rachel. ‘Nevertheless, it may well chance that my waffles shall be for breakfast.’ And Rachel closed the door noiselessly and retired.

But while Mrs. Raynor turned her head the door was opened again as noiselessly; and when she once more looked round from a contemplation of the clock face, the very persons whom she had expected stood in the doorway. Rosalie in her flush of restored health and one or two other things, her furred and deep-coloured travelling dress, looking as little as possible like a quakeress; and Mr. Raynor, though bearing out his mother’s words that he would have made a beautiful Friend, yet with an air and manner that said if he were one now it was after a different pattern.

‘I wellnigh thought the south meant to keep thee!’ the Quakeress said as she embraced him.

‘Nay mother,’ he answered smiling, ‘it was somewhat from the north that kept me. And you see how my rose has bloomed the while.’

‘Fairer than ever! and better loved.’

‘Than I deserve to be ——’ Rosalie said.

‘Thee need not speak truth after thine own fashion here,’ said the Quakeress with a smile, and laying first her hand and then her lips upon the fair brow that was a little bent down before her. ‘Doesn’t thee know that the right of possession is enhancing?’

And Rosalie had nothing to do but sit where they placed her, and let her hands be ungloved and taken care of; while questions and words of joy and welcome could not cease their flow, nor eyes be satisfied with seeing.

Then came tea; but Rosalie drew back from being put at the head of the table.

‘That is Mrs. Raynor’s place,’ she said.

‘So I think.’

‘What does thee call thyself?’ said the Quakeress with a quiet smile. ‘That is thy name now, dear child, and that is thy place.’

And Rosalie was seated there without more ado; where even Rachel surveyed her with unwonted admiration of colours and uncovered hair.

‘Mother,’ said Mr. Raynor, as it drew on towards eight o’clock, ‘you must let me take Rosalie away for an hour. I know she will not rest till she has seen Thornton and Hulda.’

‘This night?’ said the Quakeress. ‘Thee will weary her.’

‘That is just what I am trying to prevent.’

‘Thee must judge for thyself, Henry,—nathless thee knows that we Friends think much of patience.’

‘She is patient enough,’ said Mr. Raynor laughing, and laying both hands on his wife’s head as he stood by her chair. ‘So patient that she requires very particular looking after.’ And when the carriage came he took her away as he had said.

What a happy surprise there was! what a joyful hour of talk! How pleasant it was to see the old house again, restored from its fiery damage and with such owners. So much joy, that one is tempted to wonder why nobody ever wrote upon the Pleasures of fulfilment. And if her old sorrowful life came up to Rosalie, it was but to stir the very depths of her heart with wonder and gratitude; till she was ready to say with the Psalmist, “*What is man, that thou art mindful of him? or the son of man, that thou visitest him?*”

An hour had passed, and half of the next one, and still they lingered; until a slight stir arose in the street, and cries and shouts—first distant and then drawing near—broke the stillness. Cries not of fear, as it seemed, neither

of disturbance, but of joy—of excitement—of wild congratulation. In a moment the little party were at the door.

All was still, breathless. Then again the murmur came swelling towards them, and foremost among the cries broke forth ‘Peace! Peace!’ Nearer and nearer the people took it up and cried, ‘Peace! the Peace!’ From one and another—from deep strong voices and from throats that could hardly raise the cry, it was heard—‘The Peace! the Peace!’

‘Peace! Peace!’ cried out one little boy whose pattering footsteps bore him swiftly past the house. ‘Peace! Peace!—I wish my voice was bigger!’

‘I wish my heart was,’ Mr. Raynor said. And as they rode home lights sprang forth in every window, the city shone as if with daylight; and ever went up that cry, ‘Peace! Peace!’

[We regret that our narrow limits have compelled us to do imperfect justice to a story which has interested many readers. But those who wish to peruse it entire, can now obtain “My Brother’s Keeper” in a separate publication, containing all the omitted passages. Ed.]

THE NUN'S CONFESSION.

THE painted panes let through the smile
Of the descending sun ;
In jewelled light it crept along
The carvings quaint and dun,
And poured its benediction bright
Upon the kneeling nun.

'Twas spring in all the world without,—
And every heart was gay,
And opened, like the opening flowers,
Beneath the warmth of May :
Strange thrills of joy stole unawares
Into the cloisters grey.

And now 'tis evening, and within
The convent-chapel fair,
Beside the carved confessional
Behold her kneeling there,
With earnest, upturned countenance,
And sad, perplexed air.

At first in listless attitude,
As one condemned to hear
Some silly oft-repeated tale,
The priest bent down his ear ;—
But soon his startled heart awoke,
His absent thoughts drew near.

THE CONFESSION.

My Father ! I have wandered far,
And lost the clue of truth.
Oh, take my hand and lead me back,—
Have pity on my youth.

Last evening, in the quiet pause
Betwixt the night and day,
I pondered, self-involved in thought
Upon this month of May :
The shadow of the lilac-trees
Fell on me where I lay.

Like a large lens that drinks the sun,
The inward sense of sight,
Drew down into my thirsty soul
A flood of vernal light ;—
My soul in dreamy rapture drank
The river of delight.

I saw no more the gloomy walls
That shut the garden in,
No more came pouring over them
The city's endless din ;
But gentle memories and desires
Painted the far unseen.

Mountains, receding one by one,
Filled up the distance dim ;
Such as the painter drew beyond
The sleeping form of him,
Who 'neath the opening gates of Heaven
Rested the weary limb.*

* Rembrandt's Vision of Jacob.

Mysterious with a slumbrous haze
They slept within the sky ;
While deepening into dark and bright,
Distinct in drawing nigh,
Green slopes, bright pools, and shadowed rocks,
Closed round my gazing eye.

And into like perspective passed
The motion and the sound ;
The far cascade, silent as snow,
Fell to the vale profound ;
While at my feet a thread-like rill
Sang through the mossy ground.

The quiet smile shone slowly out
That in the distance lay ;
Till over-head and all around
Laughed merry-hearted May,
And streams and birds and rustling boughs
Kept the year's holyday.

And oh! the unutterable love
That gushed within my heart !
All thoughts of beauty, all delights,
Of nature and of art,—
All best and dearest things on earth
Had in that dream a part.

And still the closing sense shut out
All weariness and pain,
And all my anxious future died,
—That loss indeed was gain.
On boundless life and love I launched
As on a shoreless main.

Alas ! I know my sinful soul
Was wandering far astray ;
Yet all the while it seemed as if
An angel led the way,
And showed me God's own glorious world
Which I had cast away.

And, O my Father, must I still
Drag out what yet remains ?
Discovering to thy holy eyes
My heart's most blushing stains—
Does God break through that pure reserve
Which He Himself ordains ?

'Tis as I thought—when on my brow
These heavy folds were bound ;—
While my poor shining curls, shorn off,
Lay dead upon the ground :—
The veil God gave is better far
Than that which man has found.

My soul grows dark ; for every right
Seems lost in double wrong.
Bear with me yet, for maddening doubts
Make my confession long,
As vexing discords dash aside
The current of a song.

Alas, thou sighest for my sin !
All else I well might bear,
But not to bow in shame for me
My Father's hoary hair.
My lamp of peace is out. Alas !
Hast *thou* no oil to spare ?

Thus, sitting 'neath the fragrant tent,
The blooming lilacs made,
Through half-closed lids my spirit drew
The sunshine and the shade,
And on their Heaven-broad wings escaped
To where my childhood played.

In heaviest sleep our conscious souls
Still watching near us seem,
And some slight household noise may make
The crisis of a dream.
Soon on my waking reverie
Broke in a swallow's scream.

It told of nests that underneath
The old grey corbels hung,
Of glancing wings,—now outward bound,
Now homeward to the young,—
And all the pleasant cares of which
That endless twittering sung.

I speak of what I knew by heart,
I did not see it then,
That single, sudden cry alone
Broke through into my brain,
And my enchanted dreamland woke
And answered back again.

The languid, odorous air stole round
In whispers strangely clear,
That seemed to breathe the same bright hopes
That blessed the maiden-year,
And promise to my wondering heart
That something sweet was near.

Filled with expectant ecstasy,
My heart began to swell;—
When—slowly—from the chapel-tower
Chimed down the vesper bell,
And from the sun-lit heights of hope
To black despair I fell.

While others as an angel's voice
Caught up the welcome sound
That hushed their cares asleep, and brought
The day's best blessings round,—
I heard it as the flying slave
The bay of tracking hound.

The straightest ray of Heaven-born light
Bent in the sea appears;
So purest thoughts are turned to sin
In these dense atmospheres;
And gold transmutes to brass by this
Strange alchemy of tears.

O Nature! art thou then so false,
Or am I false to thee?
Alas! the hollow husk of Life
Is all that's left for me,
And gnawing worms coil round within,
Where the sweet nut should be.

F. A. P.

TIMES OF REFRESHING.

CHAPTER IV.

FOR nearly 1400 years the true Church had been hidden. The tall weeds that overran the fields had been mistaken for the flowers, till the nomenclature of ecclesiastical botany had become thoroughly perplexed. Fathers were called Saints, and the lives of these saints were given as the history of the Church, while God's real saints were silenced and slandered, and the scattered fragments of Christ's true Church treated as so many sections of heresy.

God allowed it to be so, for the day of the manifestation of the Sons of God is not yet come. It doth not yet appear what they shall be. This is man's day; God's day is coming. There shall be no veiling then; no reviling of the saints of the Most High; no mistake as to what is, or what is not, the Church of God on earth.

Still it seemed as if God, even on this side the great day of revelation, was to take His Church's cause into His hands and provide for her vindication before the eyes of men. Hitherto the adversary had found it easy to close the lips of God's witnesses and to blacken their name. He had power and patronage at his disposal, and he could smother truth, as well as brand with some odious name the protesters against anti-Christian error.

But now God puts into man's hand an instrument which makes this wholesale calumny almost impossible. The printing-press is set up, and through means of it God takes His truth and His witnesses more out of man's power. Hitherto it was easy to silence a voice and to burn a manuscript. But now the voice can prolong itself in articulate echoes beyond man's power to muffle. It can perpetuate itself to such an extent and at such a rate as to mock the malice of the enemy. The manuscript can be multiplied a

thousand-fold, in spite of the efforts of a Jerome or a Gregory to mutilate or tear or burn it.

Thus God, without an open miracle, makes preparation for a more abiding and truthful condition of things, in which the enemies of the truth and of the Church were no longer to have the whole field to themselves. Having made this preparation for defeating the adversary's ancient malice and cunning, He raises up His witnesses and puts His truth into their lips. Satan resorts to his old devices, but in vain. He persecutes Wicliff and slanders his memory. But scarcely are his ashes seen floating down the Swift than the press has caught up his name and his testimony. He may be condemned, but he cannot be condemned unheard. Again he kindles the flames on Huss; but in vain. The martyr's testimony is not so quickly stifled. It lives; and the name of the martyr takes wings and flies abroad. The embers of the martyr-fires were flung abroad over Europe. Ten thousand feet were set in motion to tread out every spark. But in vain. It was impossible. Nay, more; a mighty wind went over the kingdoms of the West, and the embers kindled up into flames that startled nations and terrified the enemies of the Gospel.

And now God set His instruments to work in a new and more thorough way. It was no mere fragment of doctrine, nor was it merely one truth, that was to be brought to light. The foundations were to be searched out, down to their very lowest stone. Never had the like been done before since the days of the Apostles. Never had room and time been afforded for God's witnesses to do their whole work as now. The enemy might gnash his teeth; but the work went on. He might cast a hundred witnesses into the flames; still the work went on. His power to slay the man was not yet taken from him; but his power to blacken a name or to calumniate truth,—to call evil good and good evil, was

greatly narrowed and shorn. Truth seemed to have had a new buoyancy conferred on it, and it refused to sink. Half the efforts now put forth had in a former age availed to submerge it utterly. Now it rises under every weight and pressure. *Mersus profundo pulchrior evenit.*

The shower, as it fell, was now received into vessels from which it did not so easily or speedily evaporate. Refreshings lasted longer and spread more widely. It was the same Spirit and the same Gospel as of old, but they were now to go forth in a new way and under new conditions. In these conditions there was, no doubt, evil as well as good; but still there was this peculiarity, that the truth of God was henceforth placed more out of the reach of man's enmity and slander.

The Reformation was a crisis, not a commencement of a new state of things. Before Luther there had been noble witnesses for Christ, and in almost every country throughout Europe there had been, what we may call, a pre-Reformation shower.

In the "Mirror of the Martyrs" (1631) we read:—"Certes, the fervent zeale of these Christian daies seemed much superior to these our daies and times, as manifestly may appear by their sitting up all night in reading and hearing of the word; also by their expenses and charges in buying bookes of English. Of whom some gave five markes, some more, some lesse for a booke. Some gave a load of hay for a few chapters of Saint James, or for somewhat of S. Paul's Epistles in English; in which rarity of good bookes and want of teachers, this one thing is greatly to be marvelled at, namely, that the word of truth notwithstanding did multiply so exceedingly as it did amongst them. For so (saith Master Fox) I observe in reading the registers, how one neighbour resorting to and conferring with another, eft-soones a few wordes of the first or second talke did winne

and turn their mindes to that whereto they desired to persuade them, touching the truth of God's word and His sacraments. To see their travel, their earnest seeking, their burning zeales, their readings, their watchings, their sweete assemblies, their love and concord, their godly living, their faithful meaning, may make us in these our daies blush for shame. The name by which they were knowne, one to another, was the *just-fast men*. Among these was one Thomas Man, martyr, commonly called Doctor Man, who confessed *he had turned seven hundred people* to his religion and doctrine, for which he thanked God." (P. 115, 116.)

In 1424, William White suffered martyrdom at Norwich. Of him we read that he was not after the common sort of priests, but reputed among the number of those of whom the wise man speaketh, "he was as the morning-star in the midst of a cloud. He was a well-learned, upright, and well-spoken priest. He gave up even his priesthood and benefice, and took him a godly young woman to his wife. Notwithstanding, he did not therefore cease from his former office and duty, but continually laboured for the glory and praise of the spouse of Christ, by reading, writing, preaching. The principal points of his doctrine were these, that men should seek for the forgiveness of their sins only at the hands of God. . . . Going into Norfolk with his wife, and there occupying himself busily in teaching and converting the people to the true doctrine of Christ, he was apprehended and burned."

In 1470 died Regiomontanus, "one of great knowledge in the original languages, and who had such love to the Scripture, that he wrote the whole New Testament in Greek with his own hand."

In 1489 died Wesselus of Groningen, whose last words were, "Blessed be the Lord that all my doubtings and false reasonings are gone; I know nothing now but Christ and Him crucified."

About the same time Arnoldi used to breathe this as the burden of his daily supplications, "O my Lord Jesus Christ, I believe that Thou alone art my redemption and my righteousness." And Christopher of Utterheim gave forth this as his dying testimony, "My hope is the cross of Christ; I seek for grace, not for works."

Very many of such souls were found in the age immediately preceding the Reformation. The number of pre-Reformation martyrs is far greater than most are aware of. Indeed, it may be said, that from the days of Huss the fire was never allowed to go out. In almost every country of Europe it was kept burning. Witness after witness was led to the stake. Rome boasted that she had extinguished heresy. Seldom has a boast been found more utterly false; before Huss there might be some appearance of this. But the period between Huss and Luther yielded quite a harvest of witnesses. So very widely did the shower fall, so long did it continue watering the thirsty ground.

Thus speaks an old writer, referring to the whole Reformation era, during which the long and gradual flow of blessing reached its height. "This high springtide of the power and efficacy of the word was after so sad and visible a restraint for many ages; and what of the work of the Spirit was then known was like a private seal on the hearts of the godly, in those times of sackcloth in the wilderness: but after this blessed day (the Reformation) once began to dawn, the Lord did so visibly rend the heavens, and caused the mountains to flow down at His presence, with so solemn a down-pouring of the Spirit following the Gospel, as there could be no standing before it, but cities and nations were subjected to so marvellous a power to the embracing of the truth. This great work of God was not for a short time, but for many years. Wherever the truth came, it did most discernibly accompany the same, not only to affect and convince, by some transient

flash upon the spirits of men, but to that solid and effectual change which visibly transformed them into that blessed image of Christ, by the spirit of holiness, so as it was given, both to believe and also to suffer for His name."

No laboured language nor artistic picture could better set forth the real condition of Europe, both before and at the Reformation, than the above quaint and simple sentences. He who wrote them knew what the Reformation was, and by whose power it was accomplished. It was nothing less than a second Pentecost. Beyond all preceding ages since the days of the Apostles, it was a time of refreshing.

God then led men back to the simple cross of Christ, which for centuries had been obscured. He brought to light Apostolic truth in wondrous clearness and power. He caused the rubbish to be dug away from the foundations of the Gospel that they might be laid bare. The testimony of the Reformation was for *Christ alone*,—for Him who died and rose again, and who, having sprinkled His blood upon the mercy-seat, invites men to draw near to God in the full assurance of faith.

The contest with Rome was specially round the Cross of Christ. The great question of the day was, "How is man to be justified before God?" Well and nobly did the Reformers answer that mighty question, leaving no room for mistake in their testimony as to the ground on which God invites the sinner to draw near: they said, "Christ has done everything,—take His doings, and come to God with them as your claim; use His righteousness as if it were your own,—use His sufferings as if they were your own."

God owned the testimony thus given to His free love manifested in the gift of His Son. The Spirit of God moved upon the face of the waters. It was a glorious day for Europe.

H. B.

GAZELLE, THE ROE OF SCRIPTURE.

(*Gazella Dorcas.*)

“ The wild Gazelle on Judah’s hills
Exulting yet may bound,
And drink from all the living rills
That gush on holy ground ;
Its airy step and glorious eye
May glance in tameless transport by.”

OF all the antelopes the Gazelle is the most celebrated and the most delicate. The slenderness and neatness of its body and limbs, its speed, the grace of its motions, and the large black open eye, have been regarded by the poets and the people of the countries where it occurs as so many emblems of grace and alacrity.

In imitation of its large black eyes, the Eastern females anoint their eyelashes with a preparation of antimony called *Kohhl*; and speaking of the eyes of an Eastern beauty, the poet exclaims,

“ Go look on those of the gazelle.”

Dr. Shaw* thinks that the disciple at Joppa, “whose name was [Tabitha, which is by interpretation Dorcas” (Acts, ix. 36), who was raised to life by Peter, might be so called from this particular feature and circumstance: Dorcas being the Greek name for the gazelle, as Tzebi or Tabitha is the Hebrew or Syriac.

It is the animal alluded to in the Scriptures under the names of “Roe” and “Roebuck.”

* “Travels and Observations,” p. 414.

Hemprich and Ehrenberg met with this species sometimes in herds, and sometimes in single individuals. Whenever they catch sight of an intruder the whole herd scamper away, but soon stop, the males first and then the fawns; as the huntsman approaches, the male remains for a considerable time quite still, with his neck erect, and as the enemy gets nearer he stamps the ground with his forefoot, and makes a loudish noise; on this the whole herd disappear with great speed, nor do they again halt till they consider themselves out of danger.*

Wells and other places are sometimes in the East called after the gazelle. Burckhardt† during his travels came to an *Ain Toby*, or “the spring of the Gazelle:” it is to the east of the plain of the Haouran, and gracefully expresses, like our own Hart-leap Well, some incident in which gazelles bore a conspicuous part. Messrs. Bonar and M’Cheyne, in their delightful narrative, relate, that shortly after leaving the Sea of Galilee, on the 16th July, 1839, they came to the plain of Huttin, which was then carpeted with wild flowers and dotted with patches of cultivation:—“Here we saw the gazelle bounding on before us, over shrubs and rocks and every obstacle, and felt the exquisite fulness of meaning in the Church’s exclamation, ‘Behold, he cometh leaping upon the mountains, skipping upon the hills! My beloved is like a gazelle or a young hart’ (Song, ii. 8, 9). It is the very nature of this lively animal to bound over the roughest heights with the greatest ease; it seems even to delight in doing so.”‡

Messrs. Irby and Mangles§ were often pleased to fall in with small groups of the gazelle, which proved much less

* Ehrenberg, “*Symbolæ Physicæ*.”

† “*Travels in Syria*,” p. 119.

‡ “*Mission of Inquiry to the Jews*,” p. 296.

§ “*Travels in Egypt, Nubia, Syria*,” &c. p. 7.

timid than they expected, the elegant creatures stopping to gaze on them as they passed, with their ears raised. Their light-brown colour is not unlike that of the sand, and must often conceal them from the view of their enemies; these travellers remarked, that when they were in a valley it was difficult to perceive them. Lynch, in his "Narrative of the Exploration of the Dead Sea," was struck with the stone colour of most of the animals of the Desert, which so closely resembled the hue of the mountains and plains, that there must be in this circumstance another evidence of design.

The traveller Burckhardt fell in with several places on the eastern frontiers of Syria set apart for the hunting of this animal. The inhabitants select an open space in the plain, of about a mile and a half square; they enclose this on three sides with a wall of loose stones, too high for the gazelles to leap over. Gaps are purposely left in different parts of this wall, and near each gap they sink a deep ditch on the outside. Care is taken to select a spot near some rivulet or spring to which the gazelles resort in summer. The peasants assemble and watch till they see a herd of these creatures advancing towards the enclosure, into which at last they are driven. The gazelles, frightened by the shouts and fire-arms of these people, try to leap over the wall, but as they can only effect this at the gaps, they fall into the ditch outside, where they are easily taken. The chief of the herd always leaps first, the others follow him one by one. When taken, the gazelles are immediately killed and their flesh is sold. There is every likelihood that it was this animal which Esau pursued in "the field" with his "quiver and bow," agreeably to the instructions of Isaac, who desired the venison as "savoury meat" (Gen. xxvii. 3, 4). Some European travellers, such as Bruce, do not speak highly of its flesh as food; but others, such as Laborde, and Irby and Mangles, think it well flavoured. The Arabs regard it as a

great dainty ; and we find that in the “ provision for one day ” served up at Solomon’s table, a place is assigned to the gazelle (1 Kings, iv. 23). The flesh has a sweet, musky flavour, which is highly agreeable to the palate of those accustomed to it.

The gazelle is a favourite object of pursuit to the Eastern sportsman. The Arabs watch for it with their dogs at pools where it has been drinking, as it can be easily captured in hot weather, immediately after it has drunk water. Those, however, who are fond of sport, do not snare the gentle creature in this treacherous way, but pursue it with hawk and hound. Dr. Layard,* who has often witnessed this sport over the boundless plains of Assyria and Babylonia, describes it as “ most exhilarating and graceful, . . . displaying equally the noble qualities of the horse, the dog, and the bird.” This eminent traveller tells us that the falcon and greyhound, employed in the pursuit of the gazelle, must be trained to hunt together by a process which is, however, unfortunately very cruel. The falcon is taught to eat its daily meal, which consists of raw meat, fastened to the stuffed head of a gazelle. The next step in its “ education ” is to accustom it to look for its food between the horns of a tame gazelle. In the course of its tuition the distance between the animal and the falconer is gradually increased, until the falcon has been taught to look for its meat when about half a mile off. A greyhound is now let loose at the gazelle, the falcon being flown at the same time : as soon as the poor victim has been seized its throat is cut, and a portion of the flesh is at once given to the hawk. By the time that three gazelles have been thus treated, the falcon and greyhound are considered able to act in concert. It requires some art in the trainer to teach his two pupils to single out the same gazelle, and, when that point has been gained, to keep the

* “ Nineveh and Babylon,” p. 482.

dog from injuring the bird, when struggling with its quarry. The greyhound soon learns to watch the movements of its comrade and to act in concert. In this way five or six gazelles may be taken in the course of a morning. Dr. Layard remarks, that "the falcon, when loosed from its tresses, flies steadily and near the ground towards the retreating gazelles, and marking one, soon separates it from the herd. It then darts at the head of the affrighted animal, throws it to the ground, or only checks it in its rapid course. The greyhound rarely comes up before the blow has been more than once repeated. The falconer then hastens to secure the quarry. Should the dog not succeed in capturing the gazelle after it has been struck for the third or fourth time, the hawk will generally sulk and refuse to hunt any longer. I once saw a very powerful falcon, belonging to Abde Pasha, hold a gazelle until the horsemen succeeded in spearing the animal. The fleetness of the gazelle is so great, that, without the aid of the hawk, very few dogs can overtake it, unless the ground be heavy after rain."

In the Bible the great speed of this animal is more than once alluded to. Asahel, a favourite attendant of David, is described as being "as light of foot as a wild roe" (2 Sam. ii. 18); and among "the men of might" who took part with David, when retreating before Saul, the Gadites are specified, "whose faces were like the faces of lions, and were as swift as the roes upon the mountains" (1 Chron. xii. 8).

In addition to its use as food, we may mention that the natives of Syria make a kind of parchment from the skin of the gazelle. With this they cover the small drums used as an accompaniment to their simple musical instruments. Its horns supply the place of nails or pegs, and a young gazelle is not unfrequently caught and tamed, and when reared by hand, becomes a pet of the children of the wandering Bedouin.

A. W.

LIFE, IN ITS INTERMEDIATE FORMS.

No. II. (*continued*).

INSECTA.

THIS Class of minute animals is so immense, that it would be impossible within our limits to give a hundredth part of what is on record concerning them, even if we omitted all technical details, and confined ourselves to that which is popularly interesting. The study of the whole Class is felt to be far too large for one human life to embrace with any degree of completeness, and hence we hear of men eminent as coleopterists, lepidopterists, hymenopterists, &c., from their having devoted themselves to some one or other of the subordinate groups of this vast assemblage. We shall here just give a bird's-eye view of these subdivisions, indicating here and there some of the more prominent points of interest for which each is distinguished.

Chief among them stands by universal consent the order of Beetles, principally because they are the most "perfect" of Insects. By this term "perfect" as applied to structure, which has sometimes stumbled uninitiated students, we do not, however, mean to imply that a House-fly or a Bug is not as perfectly adapted for its mode of life as a Beetle, nor that it is in the least degree less worthy of an Omnipotent Creator. The word is used by naturalists *in a technical sense*, to express the degree in which we find those peculiarities developed that constitute any particular group. Those peculiarities of structure, for example, that make an Insect *what it is*, and not a Worm or a Crustacean, are found to be pre-

sent in the greatest intensity, and in the fullest combination, in the group of Beetles, and hence we say that these are the most "perfect" of their class. A Beetle is not more perfect *as an animal* than any other, but it is a more perfect *insect*, or rather, *more perfectly an insect*.

You may very readily identify a Beetle by its mouth being armed with two pairs of forceps-like jaws, and by its fore-wings being hardened into leathery sheaths for the hinder wings, and meeting in a straight line down the centre. The technical name COLEOPTERA, or *Sheath-wings*, expresses the latter character in Greek.

Many species of this group are pre-eminent for beauty of colour, especially the many-coloured refulgence of burnished metal, as in the *Buprestidæ*, and the *Cetoniadæ*, and the *Eumolpidæ*, and others; and the lustre of the richest precious stones, as in many of the Diamond-beetles and others of the *Curculionidæ*, whose wing-sheaths under a lens look as if they were dusted with pounded gems.

The Glow-worm, that lights our hedge-banks with its feeble spark in the soft summer nights of July, is a Beetle, and so is the Firefly of the West Indies, that carries a pair of flaming lamps upon his back. The pretty scarlet Lady-bird, that appears to have had a "favourable eruption" of black buttons, is a little Beetle that every child knows and loves; and the dreadful Death-watch, that scratched the doom of our great-grandmothers on their bed-posts, is one still smaller. Very few of this great group render the slightest direct service to mankind; we do not at this moment recollect any but the *Cantharis*, or Blister-fly, which is useful in surgery.

Those Insects which have the fore-wings somewhat leathery, but less rigid than those of Beetles, and sheathing the lower pair in such a way that their edges overlap each other, are called ORTHOPTERA, or *Straight-wings*. The

Locust, Grasshopper, and Cricket, all of which make a crinkling sort of music by rubbing their stiff wings in various ways over each other, are of this sort: and so is the Earwig, that spoils our dahlias by eating holes in their tender petals, and the ferocious Mantis of the tropics, that holds up its sawlike arms as if in the attitude of prayer (hence called *Prie-Dieu*), but really watching to smite down any unwary fly that may be passing, and to seize it between the locking spines of its fore-arms.

Who that has sauntered by a river's side in the burning noon of summer is not familiar with the arrowy Dragonfly? He swoops down in wide curves, and just touches the water in his rushing flight, and turns, and darts to and fro, with a speed and a power that seem to mock the ring-net of the eager insect-hunter. The sun's ray gleams from the ample pinions as they speed past our eyes, as from surfaces of polished steel, and the long and slender body that is poised behind is clad in mail of green and azure and gold. Ha! we have struck down the bold warrior with our cane, and there it lies, spinning round in the grass, and rustling its beautiful wings, with tremulous vibrations, in its fruitless attempts to fly. Poor creature, thou wilt fly no more! no more will the vigorous impulses of those filmy pinions bear thee aloft on the thin air, and carry thee in impetuous evolutions after thy tiny prey! But what elegant organs these wings, now still in death, are! they are like plates of talc of extremest thinness, through which expands a network of nerve-ribs, a lace that no collar on fair lady's neck ever equalled; every component thread of which is a tube communicating with the air-pipes or lungs of the body! How appropriate is the term *NEUROPTERA*, or *Nerve-wings*, for such Insects as these!

And now we come to the "industrial" classes, to use an expressive term of modern coinage. The Butterflies are fine ladies that go a-shopping among the flowers, the Beetles

are the starred and jewelled nobility, the Dragonflies are warriors, true knights-errant furnished with the pomp and circumstance of war; but the humble, useful, ever-busy Bee is an artisan, a representative of that class who are "*fruges producere nati*;" and not less industrious and skilful (though far from so serviceable to us) are its cousins, the Wasp and the Ant. The architectural instincts of all these Insects, but especially those of the Hive-bee, are exceedingly curious, but we have not space here to enter into details.

This order is termed HYMENOPTERA, or *Membrane-wings*; but the technical distinction between these and those which we have just dismissed is that these possess, at least in one sex, a horny tube at the extremity of the body, which is sometimes connected with a poison-bag, and is called a sting, and at others is simply an instrument for the piercing of animal or vegetable substances, in order to deposit eggs in them. But a much more obvious difference is found in the character of the wings, which are so shaped that the hind pair seem as if cut out of the fore pair, with which they interlock by means of small hooks during flight, so that both might readily be mistaken for a single pair. The nervures are commonly stouter, and form a wider network, and the membrane is generally less delicate than in the preceding Order.

All the forms of Insects which we have been enumerating agree in one point, viz., that their mouth is furnished with biting jaws; those that follow, on the other hand, have the same organs, but so modified in development and altered in function, as to constitute a sucking, pumping, or piercing apparatus. The elegant LEPIDOPTERA, or *Scale-wings*, including the Butterflies, which are active by day, the sonorous-winged Hawkmoths, that probe tubular flowers in the twilight, and the Moths, which swarm in the early hours of night, constitute the next order. Their chief peculiarities

have been already mentioned, and we shall therefore merely mention the Silkworm, the caterpillar of an Oriental moth, now naturalised throughout the civilised world, as another example of an Insect to which man is largely indebted.

An extensive group is called HEMIPTERA, or *Half-wings*, because the majority of them have the fore-wings curiously varied in texture, the basal portions being of a stiff leathery consistence, while the terminal part, separated from the former by an abrupt line, is thin and membranous. The vast tribe of Bugs comes here, all of them repulsive and disgusting from their rank pungent odour, but in many cases adorned with rich colours, and often bearing the most bizarre forms. Here, too, are usually placed, though distinguished by some entomologists, the insects which produce the lac of India, and the splendid dye called "cochineal" of tropical America. The sole possession of the latter insect was an object of jealous care with the government of the Spanish colonies, and so highly was it valued by other nations, that our own East India Company offered a reward of 6000*l.* sterling to any one who should be so fortunate as to introduce it into their dominions. That object has been effected, and cochineal is now cultivated in many countries.

Finally (for we need not stop to describe the few parasitic, darkness-loving, uncomely insects that belong to the wingless orders), we have the order of DIPTERA, or *Two-wings*, including the Gnats, the House and Flesh-flies, whose chief distinction is indicated in their name. This is a populous group, and many of its members display habits and instincts which are highly entertaining ; perhaps none more so than those of the common Gnat, from the construction of its tiny boat of eggs, to its emergence from the water, empowered to suck our blood in its merciless practice of phlebotomy.

P. H. G.

A WEEK IN WURTEMBERG.

GERMANY is noted for its books, the annual publication of which has been estimated to equal in number that of France and England united. Leipzig, as is well known, is the great book-mart, the place where, at the periodical fairs, books are exchanged and thence become diffused through every province of Germany. But whilst Leipzig is the centre of circulation, Stuttgart enjoys a pre-eminence also, as one of the chief sources of production. The printing establishment of the Baron Cotta, which is so noted for the beauty as well as the number of its issues, we made the object of a special visit. Cotta's press is not open for the printing of books in general, but is exclusively employed for the works published by his own house. Yet, such is the magnitude of the trade which the enterprise of this one house has gathered around it, that we are induced to insert some of the statistics of its productions, with which its manager has kindly furnished us. The average daily printing is 110,000 sheets, or 220,000 impressions. This gives a yearly issue of upwards of 33,000,000 sheets, or 66,000,000 impressions. By extra work, extending the labour to 11 hours, as many as 300,000 impressions are frequently produced in a day. There are at all times many illustrated works on hand, which require the greatest care and nicety of execution. This renders the above returns smaller than they would otherwise be. The series of the "German Classics" bearing the name of the Cotta press, which is so well known by every German reader, is sufficient in itself to give employment to an immense establishment. The series extends to 570 sheets, and with a yearly issue of 40,000 copies, necessitates the printing of 22,800,000 sheets, or 45,600,000 impressions

annually. The establishment employs necessarily a large number of printing-machines: 1 four-feeder, 2 two-feeders, 7 double-cylinder machines, and 7 single, with 35 hand-presses, comprise the working stock; 2000 cwt. of moveable type and 1500 cwt. of stereotype are, we are informed, in use. There is a second establishment at Augsburg, at which the celebrated "*Allgemeine Zeitung*" is printed. A type-foundry, and all the requisites for the purposes of stereotyping and of engraving, are attached to the establishment. The number of hands in constant employment is 350.

We have already, in a former paper, given an account of the Mission Conference. On the following day we attended the *Pastoral Conference*. There were present upwards of 150 pastors,—the best men in the Church of Würtemberg, with some few from the circumjacent provinces of Southern Germany. They sat, under the presidency of the venerable poet and pastor, Knapp, for four hours; the first half of the time being devoted to addresses, or rather conversational remarks, upon one or two questions of doctrine, suggested by the passages of Scripture read at the commencement, and the remainder of the meeting being engaged in the discussion of matters connected with the position of the Church and the progress of evangelic truth in Würtemberg.

Of such conferences as the above, two are held yearly in Stuttgart; and they are unquestionably the means of doing much, by bringing into personal intercourse those who are engaged in the same great work throughout the country, inciting them to enlarged usefulness and greater zeal, and enabling them at the same time to take counsel together as to the adoption of those measures for the furtherance of the Gospel, which can only be carried into execution by concerted action. Such conferences are numerous also in other parts of Germany, and have carried on their beneficial operation for a considerable period. To them in great measure

is due the rise of the Kirchentag, or great Diet of the Churches, which since the year 1848 has occupied the same position towards Germany generally, as a convention of their collective churches, which the Pastoral Conferences have occupied in relation to the individual countries or provinces in which they have existed.

The Prelate von Kapff, to whom we have referred, is one of the chief ornaments, not of Würtemberg alone, but of the Church of Germany. We met him at Frankfort, where he took a very prominent part in the Kirchentag, and again had the opportunity of seeing him in his own home at Stuttgart. His name is associated with much of what has been done in that city in recent years, to supply the spiritual wants of the population. The appointments in the church being all made by a state power which has scarcely any disciplinary authority, and in the Consistory of which Government officials and even the Roman Catholic ecclesiastical dignities have a voice, it may be conceived that the preservation of true piety in Würtemberg has been due to something else than the care of church authorities. It has, indeed, for centuries been in the largest degree indebted to the existence of the "Pietist Meetings,"—meetings, that is, for the reading of the Scriptures and prayer, which have been held in private houses, amongst old and young, male and female, rich and poor, throughout the country, and through the instrumentality of which, whilst the men of intellect at Tübingen were entangled in the sophistries of a Rationalist philosophy, the light of the truth was sustained in the land and reflected back to the University, and a stream of holy influence perpetuated which has spread fertility and beauty throughout its course. These still continue very generally through the country; but to supply the wants of the Church in Stuttgart, for example, where other means are needed, a system of *eldership* has been established,

which has been productive of much beneficial result. The larger churches have fifteen; the less important, a smaller number of these elders. Each elder has a deacon, who acts as his assistant. The city is divided into districts, and it is the duty of the elder, with his deacon, to visit from house to house, and especially to care for the sick and the poor, and to distribute the necessary assistance. A committee of the elders and the clergy forms the "Poor Commission," who co-operate in the distribution of the public alms. A smaller committee meets weekly to determine the relief which the so-called "Begging-Abolition Society" affords. This Society consists of 3000 families, and collects yearly 10,000 dollars. The payments are made by a general almoner, to whose office all beggars and necessitous persons are directed. This officer has a discretionary power to alleviate want by a small sum; but all further relief in money, bread, or otherwise, can only be given by consent of the committee. The system seems to operate well, and no begging is permitted in the streets.

Independently of this, there are several Poor and Sick Societies. One,— "The Society of Noble Ladies,"—has 150 contributors and 15 ladies, who visit even amongst the cottages of the most destitute. Another,—a Sick Society,—has 15 male and 50 female visitors, who administer to the temporal and spiritual wants of the sick. There is also what is termed a "Sisters' Association," consisting of 50 young ladies, under 5 married superintendents. On the Sabbath, after the morning and afternoon services, they assemble a number of girls around them, whom they instruct, especially in biblical history and in singing. They visit also the homes of the children, and bring a useful influence to bear upon the parents. From time to time they are all assembled by the Prelate von Kapff for a children's service.

The meetings of the Young Men's Christian Association

are large and important. Besides the meetings of the members, an address is given weekly in connexion with the Association by a clergyman, which is attended ordinarily by about 200 young men. There is also a Young Ladies' Class conducted on the Sunday evening, and classes for the instruction of those who have been confirmed. Kapff has, in addition to these, classes especially designed for gentlemen and ladies belonging to a higher rank in life. The average attendance at these meetings is from 300 to 400.

Such efforts sufficiently attest the activity of the Christians in Stuttgart. Were further proof needed, we might refer to their City Missions, their Bible and Tract Societies, the weekly services in the Gymnasia, and Sunday evening preaching in the Poorhouse, the Soup Establishment, and other places, to which the "ragged" are expressly invited. Of "Pietist Meetings" there exist three or four in Stuttgart, each attended by from 50 to 100 persons, who meet twice a-week for the study of the Scriptures, and who further engage in works of Christian charity.

Our stay in Würtemberg, and the intercourse we enjoyed with its inhabitants, both in town and country, gave us a good opportunity to learn something of the social habits and manners of the people, as well as to mark the more prominent features which distinguish the Suabian character. We remember a *jeu d'esprit* of 1848, intended to bear on a political question, in which the German fatherland was figured as a body, the several members of which were represented by the various German states. In this symbolic portraiture the *heart* was assigned to Würtemberg, which,—if it imply that of all that characterises the population of that country the most marked is a cordiality and warmth of feeling, and a genuine flow of heart both wide and deep,—will meet confirmation from every one who has seen the home-life of the people, and been admitted to

the inner circle of Suabian friendship. The simplicity of manners exhibited amongst the peasantry, and the strange customs which have descended, we presume, from generations long gone by, possess an attraction which few can resist whose taste for the natural and unsophisticated in men and things is not wholly lost. To convey any conception of these is impossible in any other way than by presenting sketches of actual life, or preserving the memories of the past, as Sir Walter Scott has so inimitably done in relation to his own country in his "Tales of my Landlord." This it were vain for us to attempt, and it has been already done so well by two of their own writers, Wildermuth and Auerbach, that it is the less needed. The "Village Tales from the Black Forest" of Berthold Auerbach are accessible to the English reader, and already familiar through the translation of Mrs. Meta Taylor.

Our intercourse with the Suabian people often forced upon us a comparison between them and our own Scottish race. Many of the national characteristics of the one find an exact counterpart in the other; and very much the same relationship is borne in many respects by the Suabian to the other races of Germany that we discern in a comparison of the Northern with the Southern Briton. The Suabian is reserved in his natural disposition, and exhibits a diffidence which often betrays him into awkwardness. He is cautious in admitting any one to his friendship, but the tie once formed is proportionally closer bound. His love, and with it probably every other passion and emotion, flow deep rather than near the surface. He is full of hospitality, and to a trusted friend offers proofs of kindness which a stranger to the national habitudes scarcely knows how to receive. In conversation, the Suabian has less quickness but more sense than his neighbours; in the acquisition of knowledge, he is less rapid but more tenacious; and in the pursuit of

deeper studies he does not grasp the subject by the intuitions of a momentary thought, but is far better suited to grapple with the profounder difficulties which may beset the inquiry. And whilst the Suabian is a better philosopher, he is also a better poet, than the generality of his countrymen. That a large development of the reasoning faculty is quite compatible with the richest luxuriance of the imagination Germany, and equally our own German-like poet-philosopher Coleridge, sufficiently demonstrate; and in no part of Germany is evidence so abundant as in Würtemberg. With respect, again, to those dispositions and feelings which display themselves in social and domestic life, the Suabian character is marked by that which as it is in any approaching degree wanting amongst ourselves, so—according to the principles of supply and demand, which hold as true in philological as in political economy—it is wanting in our vocabulary. We borrow, therefore, the words *Gemüthlichkeit* and *Herzlichkeit*, to express that tenderness, kindness, true-heartedness of disposition, which it would speak more favourably to our national character were our language found to accredit its existence.

Let these characteristics of the intellectual and moral idiosyncrasy of the Suabian be applied to religion, and those differences in religious life will at once be appreciated which most distinguish his countrymen from our own, and in a great measure from his fellow-Germans. The intellect has been largely cultivated in connexion with doctrinal truth and the interpretation of Scripture by the theologians of Würtemberg, and the simpler folk are able frequently to engage in knotty controversy. The men of Tübingen we have already noticed in a former paper, and Würtemberg can boast of a lengthened succession of theologians to whom it has given birth; let us only mention Bengel, Andreaä, Osiander, Oetinger, Brenz, Rieger, Planck, Storr, Flatt,

Steinhofer, Burk, Roos, Steudel, Schmid, Beck, Dorner, Hoffmann, Palmer,—the last four of whom we have selected from its living theologians of eminence. But whilst the powers of the mind, both intellectual and imaginative, play their part and exercise their influence over Würtemberg piety, the prevailing aspect is that to which the prominent position of the *heart* in Suabian character most naturally gives rise. This same *Gemüthlichkeit* and *Herzlichkeit*,—this glow of feeling and unaffected simplicity and sincerity of soul,—this true warmheartedness, is, we doubt not, that which has most deeply, and at the same time most pleasurably, struck all who have enjoyed the friendship of the Christian people of Würtemberg.

Of the means by which, through successive generations, piety was kept alive in Würtemberg in times of general deadness and unbelief, we have already spoken. Traces of this Bible-habit, as the Germans would call it, are left, not merely in the written works of older times, but in the more floating literature of their proverbs and popular sayings and stories. As a peculiar example of this we make room for the “Watchman’s Cry,” which we nightly heard at Stuttgart, and which now, probably, for the first time sees itself in type. The summons at five in the morning, the time of rising, we have already inserted in our “Sunday in Würtemberg;” with it the cry at ten in the evening, the time of retiring to rest, corresponds. Each of the others consists of a simple couplet, rhyming together some Scripture idea associated with the number indicated. A kind friend has furnished an imitation in English, which we are glad to append, as very correctly preserving the spirit, and metre, and native roughness of these curious relics of an ancient time:—

9 P.M. *Neun* undankbar 'blieben sind;
Fluch den Undank, Menschenkind.

11 Um *elf* Uhr sprach der Herr das Wort,
Geht ihr auch in Weinberg fort.

- 12 *Zwölf* Thor hat die goldne Stadt,
 Selig wer den Eingang hat.
- 1 A.M. *Eins* ist Noth ; Herr Jesu Christ,
 Lass dich finden, wo Du bist.
- 2 *Zwei* Weg hat der Mensch vor sich ;
 Herr, den schmalen führe mich.
- 3 *Drei* Personen sollen wir
 In der Gottheit ehren hier.
- 4 *Vier*-fach ist der Ackerfeld :
 O Mensch, wie ist dein Herz bestellt ?

NINE displayed a thankless mood,
 Cursed be ingratitude.

At ELEVEN the Lord did say,
 In my vineyard work to-day.

TWELVE gates has the golden heaven ;
 To the bless'd is entrance given.

ONE thing is needful,—let thine heart
 Be found by Christ, where'er thou art.

Two ways before him each man hath ;
 Lead me, Lord, the narrow path.

THREE persons in the Godhead we
 Should honour in a like degree.

FOURfold is the seed-sown ground,—
 How, O man, is thine heart found ?

The ten-o'clock curfew will serve as a study in the
 Suabian dialect :—

- 10 P.M. Höret, ihr Leut', was will i' Euch sage' ?
 D' Glock' hat *zehne* g'schlage'.
 Bewahret Feuer und Licht,
 Dass uns Gott in Gnade' behüt,
 Wohl um die *Zehne*.

Hear, ye people, what I shall tell :
 TEN times has rung out the bell.
 Put out all fire and light ;
 May God's grace keep us right
 At TEN o'clock.

BRITISH MINING.

LEAD (*continued*).

HAVING in a former number sketched the history of mining for lead ore, we have now to describe the occurrence of this mineral in nature. It has been already remarked that there are numerous indications of the operation of some general law in regulating our mineral deposits. We require, however, far more searching examinations and more accurate observations than any which have yet been made, before we can expect to determine the *constants* in these great natural operations.

The same law does not appear to hold good in districts differing in their geological character. For example, the lead-lodes of Devon and Cornwall have usually a direction nearly north and south; but those of Alston Moor and northern England generally run east and west, or deviate but slightly from this direction. In the west of England the lead ores occur in well-defined *lodes*, having but a slight inclination from the vertical; in Wales, the lodes assume the character of great deposits united by *strings*; and in Durham and Northumberland the lead often lies in *beds*.

Under whatever conditions the lead ores are found, they clearly indicate the fact of their being formed from aqueous solution, and not, as was formerly believed, by any action of subterranean heat. To select an important lead district as an example will better serve the purpose of these short essays than to venture on any description of a more general character.

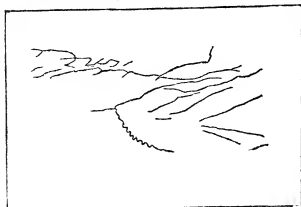
Alston Moor in Cumberland is remarkable for its mining deposits, and especially for lead; we will, therefore, confine our descriptions to it. An exceedingly graphic writer on

this locality thus describes these mineral formations: "The undulating surface of the country presents a great variety of geological strata bassetting or cropping out on the inclined surface of the hills, not uniform in inclination, but subject to many varieties of position, some of them abrupt and unaccountable. The principal of these varieties are caused by veins traversing the strata, and containing more or less of metallic ores. These veins may be briefly defined as greater or less cracks in the crust of the earth, and are comparatively not greater in proportion to the mass of the strata in the districts intersected by them than the minute cracks which would be found in a small clay model of the district when drying."

The *veins* or *lodes* of Alston Moor have a tolerably direct course for a considerable distance—some of them, indeed, for miles. They are designated *veins*, or *right-running* veins—these have a direction from a little to the north of east to the south of west; *cross-veins*, or such as have a north and south direction; and *quarter-point veins*, which include those which have a bearing between these.

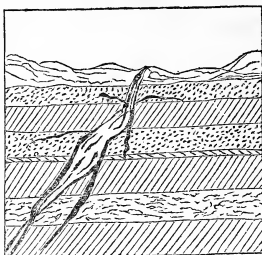
The *Hade* of veins is the mining term of the north of England, corresponding with the term *underlie* of the southern miners, which signifies the inclination of veins from a perpendicular direction. In Weardale the veins mostly *hade* to the south, and in Allendale and Alston Moor in the contrary direction.

Supposing the annexed woodcut to represent a mile of



surface in the mining district which we are describing, and that the superficial soil was removed so that an observer was enabled to look down upon the lodes, they would appear like the irregular

lines we have drawn. If there was a quarry, or any open working in the neighbourhood, so that we could observe the lead lodes as cut across or in section, they would appear as in fig. 2. The main lode is shown, and also the lateral veins which are of common occurrence. The upper side of a *hading-vein* is called the *hanging-cheek* or "*the hanger*," and the under side the *ledger-cheek* or "*ledger*."



In Alston Moor the contents of the unproductive parts of veins are chiefly described by the miners as *dowk* and *rider*; in other districts this is called *veinstone*.

The "*rider*" of some large veins is so very hard as to resist the action of the atmosphere, while the adjacent strata have suffered decomposition. Along the course of what is called the great sulphur vein at Nunstones, near Tynehead, the hill is marked by conspicuous rocks observable at a great distance—these are the so-called "*riders*" of the mineral veins. The Nunstones great copper vein, which has been, from the appearance of its *rider*, called *the back-bone of the earth*, is the largest vein in Alston, being in some places nearly three hundred feet wide. This may, however, be regarded rather as a collection of small veins, than one large one. It has been searched for copper, but not with profit.

Galena is the principal ore of lead, and is found abundantly in this and other mining districts. The ores of galena vary in their character, some producing eighty-five per cent of lead, others not more than forty. Of a rich variety, the following is the analysis :—

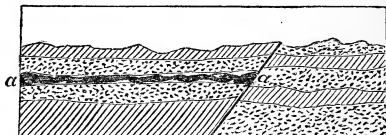
Lead	85.13
Sulphur	13.02
Oxide of iron	5
Lime, &c.	1.35
<hr/>	
100.00	

All the ores of lead contain silver; but, as already stated, the quantity varies considerably. The following table, compiled by Mr. Sopwith, shows the value of the Alston Moor lead for silver:—

	oz.	dwt.	
Thorterjile vein	21	5	in the ton.
Nentsberry Hags	20	18	„
Windy Brow	17	12	„
Rampgill	9	6	„
Brownly Hill	8	1	„
Blagill	7	7	„
Carr's Vein	4	13	„

Carbonate of lead, or native white lead, is found extensively in some districts, especially in Flintshire,—it has not been abundant in the Alston Moor district. Phosphate of lead, arseniate, phosphate, and sulphates, are ores which are occasionally found; but these are rather to be regarded as mineralogical curiosities than articles of commerce.

Flat veins, or, as they are termed by the miners, *flats*, have been very productive of ore in this northern lead region. The ore in these *flats* lies horizontally, and the excavations in them are several yards in width. These are not unfrequently encrusted with spar, when they form interesting objects. These *flats* vary as much in their size and nature as veins do; sometimes no lateral extension of the veins occurs at those parts of the strata where *flats* occur. *Flats* are often very deceptive in their nature. They occasionally reach to a great extent, running with the adjoining beds like a regular stratum, as in the adjoining figure, the



flat being represented by *a a*, and then terminate suddenly

by a *back*, or joint in the strata. The London Lead Company worked a *flat* of this description for a long time very successfully, which terminated suddenly in the manner described. This, and the *faults* previously mentioned, give much uncertainty to all mining operations. The development of the Alston Moor district is mainly due to the indefatigable industry of two miners. A trial for veins on the north side of the mountain of Middle Fell had been made by a company, and after a useless expenditure of 2000*l.* the mines were abandoned, and lay neglected for eight years. In 1812, John and Jacob Walton, with some other miners, obtained leave to pursue the trial. Four men were employed to drive twenty fathoms of the level in continuation of the old workings, at four guineas a fathom, by which they made 16*s.* or 17*s.* a-week. They worked for a year and three quarters without observing any result, and they had driven into the rock seventy fathoms. In April 1814 a vein was discovered which had a good appearance, but which would not pay for working. After driving through the vein, which was two feet wide, a *rise* was made to the low flat of the great limestone (that is to say, the miners worked upwards into the superincumbent stratum), where they discovered the veins filled with carbonate of lead, or white ore. The four miners took a bargain to work the vein at 18*s.* per bing (a local mining measure of eight cwt.) until midsummer, and in that time raised 300 bings of ore, and profited 80*l.* per man. This was followed by another bargain of 16*s.* per bing, by which they cleared 25*l.* each in three months. Thus was developed one of the most extraordinary lead-mines in the world. This Hudgill Burn mine is supposed to have yielded an annual average profit to the proprietors of 30,000*l.* In 1820 its produce was 3400 tons of lead ore, since which time the quantity of ore raised has been diminishing; but the mine still gives to the indus-

trious miner nearly 200 tons each year. The entire produce of the mines of Cumberland at the present time is about 9000 tons of ore per annum, producing nearly 6000 tons of lead.

In working the lead-mines of the hill districts of this kingdom, a different practice is adopted to that which has been described when speaking of copper and tin mines.

Levels are driven into the hill, either above or below the stratum intended to be worked, but, if possible, *below*, in order that the work may fall down, and *on one side of the vein*, because the strata there are firmer than those above or below the vein.

From the level access is had to a vein by a *RISE*, which is a shaft, worked upwards, communicating from one side of the level to the vein. At the bottom there is a level space left, about three feet above the floor, for the convenience of loading the waggons, which are taken into the mine through the levels. These rises are made at fifteen or twenty fathoms from each other. When, however, it is necessary to descend to explore the lower strata, a *sump* is sunk. That which if commenced from the surface would have been called a *shaft*, is denominated a *sump* when executed underground.

All the work wrought in our lead-mines is included in the terms *ore*, *bouse*, and *deads*. The first is the productive mineralised portions of the vein; *bouse* comprehends all the work that contains any portion of ore; *deads* expressively denote the stones, earth, &c., from which no profit can be obtained. The following excellent description of the Alston Moor miner's peculiarities is extracted from a little work of much interest written by Mr. Sopwith. He is describing a visit to a lead-mine by a party of strangers, to whom the miners pay much attention:—

“Most of the miners are well acquainted with practical

mining, and with this is blended a knowledge of many facts in geology and mineralogy. But many of them are tolerably well informed on other subjects, and a friend of the author's was much surprised, in one of those *forehead meetings* (a meeting in the forehead or head of the vein), to hear Blackwood's 'Commentaries' quoted by a miner, both with accuracy and direct reference to the subject of discussion. The miners work, by what is often in other trades called, piece-work, so that time spent with strangers is taken from their own labour, and the prodigal expenditure of light is almost at their own cost. By the latter is meant the custom of miners of not putting out their candles, however numerous the company may be, and a *forehead* assemblage presents a brilliant illumination, twenty or thirty candles being sometimes placed against the wall. If any partners of the mine are present, many are the speculations on the goodness and improving prospects of the *grove*. The *bonny dowk* and *excellent rider*, as well as the ore, come in for a share of gratulation, and are often considered harbingers of the vein being still more productive. Many a lively song and joke are often added to the entertainment of such an assemblage as we are now describing. . . . It may here be remarked, that the conversation of miners sometimes has a curious effect from their assuming, as it were, a sort of volition in the mineral world. They speak of a vein being *frightened* to climb the hill, and that she, therefore, *swims* away to the *sun-side*. The throw of the strata is attributed, as it were, to the *act* of the vein,—'she *throws* the north cheek up.' These are homely, but they are also expressive modes of describing what they have frequent occasion to speak of, and they save a world of words."

R. H.

OURSELVES.

THE SENSE OF SMELL.

TASTE and Smell are twin senses; and they often help one another, as near relations ought to do. Both of them fulfil important duties in the human economy, each in subservience to a vital function. By Taste we discriminate the different qualities of food, and, assisted by experience, determine its fitness or unfitness for nutrition. Smell is annexed to respiration, and detects with great nicety the purity or impurity of the air we breathe. The external form of the nose does not seem to influence its functions—whether it be long or short, Grecian or Roman;* neither does the action of some small muscles connected with its external mechanism. In the human species, indeed, these muscles appear to be almost only rudimental; and when employed they chiefly indicate states of feeling. To some of the inferior animals, when more perfectly developed, they are very useful, and to others essential to life. By them the horse dilates the nostrils to admit larger amounts of air; the amphibia, on descending into water, use them to close the apertures.

The interior cavity of the nose is much larger than it seems to be. It is not a mere continuation of the orifices which appear at the apex; but it is an arched vault, reaching from the openings of the nostrils to the upper and back part of the throat, gradually enlarging and again contracting

* Blumenbach and Soemmerring, however, assert that the nose is smaller in Europeans, and in other civilised races, than in those nations of Africa and America which are but little removed from a savage state, and infer a consequent acuteness and power of the sense from the larger size of the organ.

as it extends backwards. It is bounded above by the bones of the head, below by the palate bones, and behind by the soft palate. A partition or septum, made up of bone and cartilage, divides it symmetrically into two portions or fossæ. Into these project several processes of the bones of the face ; and a small bone (the turbinated), proper to the nostrils, rests on the floor of each. The regularity of the surface is thus broken up, and its extent considerably increased ; it is still further enlarged by communications with various cavities in the adjoining bones. The whole interior is lined by a soft membrane, called the Schneiderian, proper to it, which is well supplied with blood-vessels, and is studded with small glands that pour out the mucus by which it is kept moist. On this membrane, and chiefly at the upper and anterior part of the nostrils, those nerves are distributed which endow it with the *Sense of Smell*, where they form a network of most delicate texture. Some branches of the nerves of sensation communicate to it a considerable amount of feeling. It is protected by a delicate layer of the cuticle, called here the *Epithelium*. The functional purposes of the membrane are still further promoted by the *ciliated structure* of the epithelium. This requires a little explanation. If a small portion of this membrane, or which shows it still better, of the palate of a frog, is submitted to the microscope and the section examined, it is found to consist principally of a series of little cylinders which stand upright or obliquely together, making a sort of palisade, topped or fringed with ciliæ. These ciliæ are minute hairs, like the pile on plush or velvet. A magnifying power of 200 diameters shows them distinctly.

They seem to be always in motion ; vibrating either backwards and forwards, or circularly ; drifting along any molecules which come within the range of their influence. The same structure and movements are discernible in the

windpipe and larger branches of the air-tubes; in the canals connected with the eyes and ears; on the membrane which lines the cavities of the brain; and in several of the membranous tubes. Nor are they confined to the human species or to the mammalia; but they are extended to the amphibia, to reptiles, and to the invertebrata. As the movement of these ciliæ is quite energetic, and continues, though the piece of membrane under examination is separated from all connexion with the neighbouring parts, it clearly does not depend on the circulation of the blood, nor on any direct communication with the nervous system; nor is it under the influence of the will, as are the fringed appendages possessed by some polypes and infusoria. The number of the vibrations differs a good deal in a given time; some observers have counted 70, others 100, or 300 in a minute. Few stimuli seem to accelerate the movement; many substances retard, and some suspend it. Heat, electricity, galvanism, cold, ammonia, ether, salt, check it in various degrees, and in relation to their amounts of concentration and power. It continues after death. In the mucous membrane of the rabbit's trachea, it remained for five or six days; in that of the frog's mouth for eight or nine; in the œsophagus of the tortoise for fifteen days, after the animals were dead. It is highly probable that in the human nostrils, this movement assists the sense of smell, by producing currents in the impregnated air; and so subjecting larger amounts of it to every part of the sensuous surface.

Thus prepared, the surface is exquisitely susceptible of its proper stimuli. These are the effluvia which emanate from all odorous bodies. The delicacy of the organisation, and the acuteness of the sense, may be appreciated in some degree by the extreme subtlety of the odorous particles. Certainly they are the rarest forms of ponderable matter by which the senses can be impressed. If we dissolve a pre-

cise amount of any odorous substance in water, or diffuse it in air, and afterwards reduce it by definite dilutions, we come to know the smallest quantity that can be distinctly recognised. A space of air containing only a *two hundred thousandth* part of bromine vapour, gives an unpleasant smell; a portion of air containing the *one-millionth* part of sulphuretted hydrogen gas gives a distinct odour. Essential oils are still more powerful. The *ten-millionth* part of a grain of otto of roses, will give rise to its peculiar odour, and the smell remains for many months. Oil of cloves is a little less effective, but nearly as durable. Musk is quite as powerful and more lasting. The *thirteen-millionth* part of a grain of musk dissolved in spirit of wine, and then diluted with water, can be quite distinctly recognised. And in addition to this, it must be remembered, that even this quantity, this modicum, is not applied in its fluid state to a definite point on the surface of the membrane, but it has to be diffused in the air, and then presented to a considerable portion of the organ; the limit, therefore, seems to be almost illimitable.

The delicacy of the sense differs a good deal in different persons. Some do not possess it at all. Belzoni and Wordsworth are said to have been quite without it. Many substances agreeable to one person are disagreeable, and even inodorous, to others. Most odours are repulsive if in excess.

The utility of the sense is not confined to its detecting the purity or impurity of the air; nor indeed does it determine quite distinctly its fitness or unfitness for respiration unassisted by experience and observation: for although a disagreeable smell almost always denotes a foul atmosphere, and that the air so tainted is unsuitable for the purposes of life; yet an agreeable, or even negative odour, is no sure proof that the air is wholesome; the vapours of ether and chloroform are deleterious, and yet not disagreeable: but

smell is a powerful auxiliary to taste, which without it would be to a great extent vague and limited.*

It is, moreover, a source of real gratification. They who live in the metropolis, or within the confines of large towns, and who are treated chiefly to the fumes of tobacco,† the odours of "escaping gas," or to the aroma proceeding from dead animal and decaying vegetable matters; or who only know what fragrance means as yielded by some poor flaccid and besooted flowers imported from the neighbouring florists; or by the tainted waters of the perfumer; can hardly appreciate the value of the sense in this respect, or calculate its additions to the sum of human enjoyment. He forms a much truer estimate, who has been roused by—

"The breezy call of incense-breathing morn:—"

"Who knows a bank whereon the wild thyme blows;
Where oxlips and the nodding violet grows;
Quite overcanopied with lush woodbine,
With sweet musk-roses and with eglantine:—"

who has nuzzled in the richness of a fresh-gathered and dew-bemoistened rose: or, walking with "Meditation" Hervey, along the hedge-rows, or across a bean-field, or in the garden, has shared his enjoyments, and perhaps used his language: "What sweets are these which so agreeably salute my sense? They are the breath of flowers; the incense of the garden. How liberally does the jasmine dispense her riches! How deliciously the woodbine has embalmed this morning walk! The air is all perfume.

* The communication between the organs is by the posterior nerves.

† As the Sumptuary Laws are asleep, it does not seem worth while to arouse them for the purpose; and as any enforcement of the laws against "offences done to the person" might seem to infringe on the liberty of the subject; we must be content with hoping that this nuisance will be abated, by an extension of the new enactment, obliging the votaries to the Virginian weed at least to "consume their own smoke."

How delightful is this fragrance ! distributed in such nice proportions, it neither oppresses nor eludes my perceptions. Here luxury itself is innocent ; indulgence incapable of excess. This entertainment not only regales my sense, but cheers my soul ; instead of clogging, it elates its powers."

We linger for a moment to notice the happy transfer of terms by which the *language of sense* is employed to express our mental perceptions and emotions. Thus, we say, " Such a man has good *common sense* ;" of another, that " he is a person of fine *taste*." We *feel* the force of an expression ; and *see* the drift of an argument. Of such an one, we remark that " he is in good *odour*." Mrs. Rowe, with her usual tact and delicacy, sings—

———— " I sleep,
But still my *listening* fancy wakes."

And Shirley,—

———— " The actions of the just
Smell sweet and blossom in the dust."

How grateful *this* perfume is ! How long it lasts ! Though Archbishop Leighton has been dead for nearly two centuries, the air of Horsted Keynes, where the holy man lived and was buried, seems still redolent with his good name. After a lapse of 1800 years the odour of the ointment, poured by the penitent woman on the feet of her forgiving Lord, is yet fragrant ; and sanctifies our regard for her, who " did all she could, and came beforehand to anoint His body to the burial." P. S.

A NEW METHOD OF DEMONSTRATING GEOMETRICAL PROPOSITIONS.

“Segnius irritant animos demissa per aurem,
Quam quæ sunt oculis subjecta fidelibus, et quæ
Ipse sibi tradit spectator.”—HOR. *de Art. Poet.* 180.

IN the catalogue of those studies which have contributed their benign influences to elevate and improve the human understanding, the science of Mathematics yields precedence to none. Astronomy, Optics, and all the higher branches of Natural Philosophy, are mainly dependent upon it for the verification of their principles; and independently of being thus one of the most useful of pursuits to the well-constituted mind, it is one from which the purest enjoyment can be derived, inferior only to the cultivation of religion and the practice of virtue. So highly esteemed were mathematical acquirements among the ancients, that the illustrious Plato believed that Geometry continually employed the mind of the Most High, and Cardan well expresses the sentiments of those who are proficient in this branch of learning when he says, “Honorificum magis est et gloriosum hæc intelligere quam provinciis præesse formosis aut ditem juvenem esse.” Education may be termed the art of so cultivating the mind as to render it a more powerful and exact instrument than it could be otherwise, for the discovery, acquirement, and propagation of truth, whilst fitting it to be a better guide in the regulation of our conduct, and in the successful prosecution of those matters to which the attention may be turned. In order to attain results so desirable, a habit of strict reasoning and a power of commanding our ideas must be acquired, or else the mind will be continually diverted by frivolous and transient affairs. As Dr. Abercrombie has said, “It may not, indeed, be going too far to assert that our condition in the scale both of moral and intellectual beings,

is, in a great measure, determined by the control we have acquired over the succession of our thoughts." Such a discipline is conferred upon the intellect by all branches of mathematical study, but more especially by Geometry. The cause of this superiority is abundantly evident: for when the definitions are clear; when the postulates cannot be refused nor the axioms denied; when, from the distinct contemplation and comparison of figures, their properties are derived through a well-conducted train of inevitable argument, there is naturally gained a habit of close, exact, and methodical reasoning; a habit which strengthens and sharpens the mind, and which, being transferred to other topics, is of general importance in the pursuit of truth.

Accordingly, Euclid's Elements of Geometry have always been considered even by those who are not mathematicians as an excellent Logic, and an invaluable means of mental discipline.

Whilst feeling great diffidence in proposing any new system connected with such a science, the writer is persuaded that the method which he now introduces to the reader's consideration is superior to that generally in use. Its advantages appear to be threefold.

Firstly, The learner is enabled at a glance to perceive the real argument, the main reason upon which the truth of the proposition depends. Now, every one accustomed to scientific teaching must be aware how necessary it is to consider the functions and character of the faculty which we call memory. These functions they well know are twofold,—*remembrance* and *recollection*; the former consisting in the power of stowing away facts, the latter in the power of recalling them at pleasure. That the memory may accomplish its work of recollection, it must rest upon thorough comprehension of the subjects under consideration, without which it would be quite possible for a youth to commit the whole of Euclid accurately to memory, and yet not obtain a

single correct geometrical conception. Much of this may be attributed to the fact that the memory is so much over-exerted in retaining all that mass of verbiage which envelopes the present editions of Euclid, and the attention is so much engaged thereby, that it is almost impossible for the student to bring his *intelligence* to bear upon the true arguments of the case. In the method now submitted this defect is obviated, and the reasoning is rendered plain and distinct.

Secondly, It enables one who may be desirous of refreshing his memory by looking back to propositions he has learnt before to read just so much as he desires, and no more. Next in importance to the habit of working from intellect, and not from memory, is the custom of ascertaining by occasional reviewings the extent and firmness of the path we have already passed over—a custom which excites and keeps alive that mental activity which is so necessary to the surmounting of difficulties and the pursuance of a continuous progress. The advantages arising from such a habit are by no means confined to any one science; but it would be of peculiar use to the student of Euclid, were it not that the ordinary editions of that work render it necessary for him to reperuse the whole of the propositions which he desires to restore to his memory, and thus so much labour is expended and time lost that the good effects are nearly counterbalanced by the inconveniences of the system. In the mode now before you, a mere cursory inspection will bring back to the mind the arguments required, and thus preclude the necessity of further retrospective glances.

Thirdly, It retains the successive links in the chain of reasoning in the order of their relative importance. Those acquainted with mathematical reasoning will know that the principal difference between it and that of ordinary logic consists in the progressive form which distinguishes it. Dr. Whewell says of this, “The chains of the logician generally consist only of two or three links. In mathe-

matics, on the contrary, every theorem is an example of an extended progressive chain ; every proof consists of a series of assertions of which each depends upon the preceding, but of which the last inferences are no less evident or no less easily applied than the simplest first principles." Where such reasoning as this is intended for exposition it is of great consequence that the consecutive arguments should be plainly exhibited,—the slightest obscurity would be apt to induce a young mind (in order to save itself the trouble of investigation,) to take the conclusions of the text-books as infallibly right,—a habit which should never be tolerated, for the conviction they carry should alone be sought in the evidence they produce. "The faculty of pursuing such processes (mathematical reasonings) readily and safely," says Dr. Olynthus Gregory, "is of inestimable value;" and where, as in the method of which we are now treating, the links in the chain of reasoning are clearly, as it were, mapped out, the task is one of comparative ease.

If the advantages of this method are as manifest to all as they are to myself, then, indeed, it will contribute in no mean degree to accustom and prepare the student to carry forward in his mind a system of original investigation ; and this, be it not forgotten, is the legitimate aim of all scientific training. But, whatever may be the success of this design, I shall at least have the satisfaction of reflecting that I have attempted, to the best of my abilities, to render more smooth the rugged path which the learner must pursue in mounting to that scientific eminence from which he may survey, in its almost boundless expanse, that empire which the geometers have erected for themselves in the realms of figure.

To illustrate this necessarily short and imperfect account of what I term "The Analytical Method of Demonstrating Geometrical Propositions," I subjoin that beautiful piece of reasoning, the 47th proposition of the first book of Euclid.

F. M. D. D.

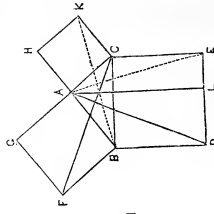
Book I. Proposition 47, Theorem.

In any right-angled triangle, the square which is described upon the side subtending the right angle is equal to the sum of the squares described upon the sides which contain the right angle.

Let right-angled $\triangle ABC$ have right angle BAC . Then $BC^2 = BA^2 + AC^2$

On BC , BA , AC , describe squares^a BE , BG , AK

Draw $AL \parallel^b BD$ or CE . Join AD , FC



$$\left\{ \begin{array}{l} GC \parallel FB \\ \text{Sq. } GB = 2 \triangle CBF^f \end{array} \right\} \left\{ \begin{array}{l} GA \parallel FB \dots\dots BG \text{ is a square}^e \\ AC \text{ is in rt. ln. with } GA \dots \angle BAC + BAG = \left\{ \begin{array}{l} 2 \text{ right} \\ \text{angles}^d \end{array} \right. \end{array} \right.$$

Base FB com. to $\triangle FBC$ and sq. GB

$$\left\{ \begin{array}{l} AL \parallel BD \\ BL = 2 \triangle ABD^f \end{array} \right\}$$

Base BD common to the triangle ABD and the rectangle BL

$$\left\{ \begin{array}{l} AB = BF^n \dots\dots GB \text{ is a square}^e \\ BC = BD^h \dots\dots BE \text{ is a square} \end{array} \right.$$

$$\left\{ \begin{array}{l} \angle ABD = \angle CBF^i \\ \angle DBA = \angle FBC^c \end{array} \right.$$

$$\left\{ \begin{array}{l} \angle DBC = \angle FBA^g \\ \angle DBC \text{ is a right angle} \dots BE \text{ is a square}^e \\ \angle FBA \text{ is a right angle} \dots GB \text{ is a square}^e \end{array} \right.$$

Add to each $\angle ABC$

$\left\{ \begin{array}{l} LC = AC^2 \\ \text{May be demonstrated simi-} \\ \text{larly by joining } AE, BK \\ \text{that } AK = CL \end{array} \right.$

$$BC^2 = BL + LC$$

Wherefore, &c. &c. $Q.E.D.$

^a 46. I. ^b 31. I. ^c 2 Ax. ^d Hyp. and 30 def. ^e Cons. ^f 41 I. ^g 11 Ax. ^h 30 def. ⁱ 4 I. ^k 6 Ax.

REVIEW OF THE MONTH.

THE month of April has deprived British Geology of two of its most distinguished ornaments, G. B. Greenough, Esq., and Sir Henry De la Beche. The former was among the patriarchs of science, having been born in 1778. Sir Henry was born in London in 1796. His name will long be illustrious as the virtual founder of the Jermyn Street Museum, and as the originator and director of the Geological Survey of England and Wales; whilst it is not too much to say, that thousands have owed their first initiation into the most popular of the modern sciences to his "Manual of Geology."

The building in Queen Square erected for the use of the Bloomsbury Branch of the Young Men's Christian Association, was opened on the 20th of April with a breakfast, over which Sir Morton Peto presided. This handsome and commodious structure provides a rendezvous, almost princely, for the young men of the district, and, we doubt not, is destined to be the scene of numerous lectures and social reunions, under the auspices of the excellent clergymen and laymen with which the neighbourhood abounds.

Last year (vol. i. p. 240) we announced an interesting movement among the Romanists at Geneva. It is cheering to find that the good work continues. Last Easter forty-five converts from Popery were received into the Reformed Church in the cathedral of St. Peter.

To Mr. Collins of Glasgow we are indebted for a copy of his "Self-explanatory Reference Bible." Its distinctive feature is that the parallel passages, or "references," are not merely indicated, but are printed in words at length. The

convenience of this method is abundantly obvious, and the work is a great acquisition to the biblical student.

Mr. Jackson has published his *Life of Dr. Newton*,—that burning and shining light of the Wesleyan ministry. With less of incident than we expected, it is a wonderful record of cheerful, daily, life-long labour, and another striking example of the power which still attends the preaching of “Christ crucified.”

“Modern Jesuitism,” by Dr. Michelsen, is not, like some *brochures* with similar names, a book of gossip or idle declamation, but it is an account of the recent history, throughout Europe, of the most mysterious, and at the same time, most mischievous of anti-social organisations. It is an interesting narrative, by a well-informed writer.

Writing to the “*Athenæum*,” Mr. Finn, the British Consul at Jerusalem, mentions that, from an analysis made in Liebig’s laboratory, it would appear that the mounds of blue-grey refuse found outside of the Damascus Gate are, most probably, the ashes of the ancient burnt-sacrifices.

Speaking of Jerusalem, it was with much interest that we lately viewed in the studio of Mr. T. Seddon some paintings which he has lately finished in the Holy Land. The Præ-Raffaelite style in which they are executed suits the subject well, and, having been completed on the spot, the soil, the herbage, the light, the atmosphere, as well as the more conspicuous objects, are represented with a truth and impressiveness unrivalled, as far as our experience goes, in any pictures from Palestine. How we wish that there were some Museum of Scripture-Illustration, in which such works could be preserved for the instruction and delight of those who have no opportunity themselves to visit the Lands of the Bible !



Arctic Fox. (Canis Lagopus.)

ENGLISH LETTER-WRITERS.

LADY RACHEL RUSSELL.

As we hinted at the close of our sketch of Lady Mary Wortley Montagu, our present paper will be devoted to an eminent letter-writer of very different stamp—to “that sweet Saint,” as Rogers calls her in his “Human Life,”

“ Who sate by RUSSELL’s side
Under the judgment-seat.”

The contrast between Cowper and Walpole was striking ; but not more so than that between these two memorable persons. Lady Mary was a witty, cold-hearted, beautiful woman of the world—an object of wonder and admiration, but not of love. Lady Rachel was essentially a loveable woman. Gentle and pious and retiring in the hour of serenity, she was firm and high-souled in the hour of peril, and trustworthy in the hour of temptation. Lady Mary seems to us to have been like a brilliant icicle, which sparkles and dazzles as it hangs in the cold sunlight of a northern winter ; Lady Rachel like a pure fountain which wells up silently from the turf in a southern land, and steals softly along among the herbs and flowers, a blessing to everything which it comes near.

She was the second daughter of Thomas Wriothesley, earl of Southampton, by his first wife Rachel de Rouvigny. She was born about the year 1636, and lost her mother in infancy. Lady Rachel’s elder sister married Mr. Noel before his father Viscount Campden was made Earl of Gainsborough.

At the time of Lady Rachel Wriothesley’s birth England was just beginning to pass through that sea of troubles

which ere long became a sea of blood. Her father disapproved of the measures of Charles the First both before and during Lord Strafford's government; and he kept aloof from the court, and was looked on suspiciously as a "people's friend," until Lord Strafford's trial, when, as he thought that the monarchial form of government was itself in danger, he became a privy-councillor, and cast his lot in with the king. He was with him at York and Nottingham, at Edgehill and Oxford. He was one of the royal representatives at the famous and futile Uxbridge conferences, the pretended aim of which was peace. And when all means of restoring harmony failed, he would not desert Charles, although he was opposed to many, if not most, of his theories. He was faithful to him to the last; and was one of the four who paid their last duties to his remains after his execution.

During the Commonwealth he retired to his seat at Tichfield; and he did not return to public life till the Restoration, when he was made Lord Treasurer. This office he did not long hold, nor would he have retained it as long as he did had Charles the Second had his own way; for the "wise and virtuous Southampton," as Burnet styled him, was no fit servant for such a king. But Death, who cancels all appointments, soon terminated his. He died in 1667, a few months before his friend Clarendon, whom he defended to the last, was so shamefully disgraced.

Such was, in brief, the career of Lady Rachel's father. He seems to have been a man of warm sympathies, and, for his time, of liberal views. As he was so little engaged in politics during her childhood, she must have had much intercourse with him; and we know that in Dr. Fitzwilliam, his chaplain, she had, if not a tutor, an affectionate and learned, although narrow-minded friend. In other respects her education would seem to have been deficient. It was a very different matter in her days from what it is now. She

spelt badly and wrote ungrammatically, long after she had become one of the "Mothers of England."

During her father's temporary retirement from public affairs, viz. in 1663, she was married to Lord Vaughan. Miss Berry, in her delightful memoir, indicates a suspicion, founded on a passage in one of her letters, that in this union "it was acceptance rather than choice on either side." Be that as it may, she evidently made herself beloved by her husband's family. She had a child in 1665, which died immediately; and in 1667 she was a widow.

But she did not long remain so. Mr. Russell, third son of the earl of Bedford, sought her hand; and in 1669, after about two years of courtship, she was married to him. As he did not come to his title of Lord Russell till 1678, when his elder brother died, she continued to be addressed by the style of Lady Vaughan till that time.

And with this marriage commenced one of the happiest and truest unions ever solemnised between two members of the human family. It was a union of intellect as well as of heart; it was based on worth and real esteem; it wore well; it endured pure and entire for fourteen years; and was only terminated at last by the murder of the husband by his voluptuous king.

They had three children, two girls and a boy. We shall choose to let Lady Rachel exhibit some few characteristics of herself and her wedded life here in very brief selections from her letters to Mr. Russell, written at times when they were at a distance from each other; before passing on to that catastrophe of their life-drama which changed its almost Arcadian scenes into a tragedy.

In 1672, three years after their marriage, she says to him:—

"If I were more fortunate in my expression, I could do myself more right when I would own to my dearest Mr. Russell what real and perfect

happiness I enjoy, from that kindness he allows me every day to receive new marks of; such as, in spite of the knowledge I have of my own wants, will not suffer me to mistrust I want his love, though I do merit, to so desirable a blessing; but, my best life, you that know so well how to love and to oblige, make my felicity entire, by believing my heart possessed with all the gratitude, honour, and passionate affection to your person any creature is capable of, or can be obliged to; and this granted, what have I to ask but a continuance (if God see fit) of these present enjoyments? if not, a submission without murmur to His most wise dispensations and unerring providence; having a thankful heart for the years I have been so perfectly contented in. He knows best when we have had enough here. What I most earnestly beg from His mercy is, that we both live so as, whichever goes first, the other may not sorrow as for one of whom they have no hope. Then let us cheerfully expect to be together to a good old age; if not, let us not doubt, but He will support us under what trial He will inflict upon us. These are necessary meditations sometimes, that we may not be surprised above our strength by a sudden accident, being unprepared. Excuse me if I dwell too long upon it; it is from my opinion that if we can be prepared for all conditions, we can with the greater tranquillity enjoy the present, which I hope will be long; though when we change, it will be for the better, I trust, through the merits of Christ. Let us daily pray it may be so, and then admit of no fears. Death is the extremest evil against nature, it is true; let us overcome the immoderate fear of it, either to our friend or self, and then what light hearts may we live with!"

In 1675 she writes to him:—

"Though I did wish my best life would not give himself the trouble of writing to me so soon, yet I desire he will believe there is no earthly thing can please me so well as what he says to me; so that, when I cannot hear him speak, his letters are my best delights: though I am with our little girl, who is, I bless God, very well, and extremely merry, and often calls Papa. She gets new pretty tricks every day. . . . I am going to see Miss end her supper and then undress, at which time she is very pleasant; and it is my best entertainment till I see again my Mr. Russell, whose I am entirely."

In 1679:—

"I heard yesterday morning you got well to Teddington, so I hope you did to Basing, and our poor Stratton, and will by Saturday night to

the creature of the world that loves you best. . . . Our small ones are as you left them, I praise God. Miss writes and lays the letters by that papa may admire them when he comes. It is a moment more wished for than to be expressed by all the eloquence I am mistress of ; yet you know how much that is."

In 1681 :—

"The report of our nursery, I humbly praise God, is very good. Master improves really, I think, every day. Sure he is a goodly child ; the more I see of others, the better he appears ; I hope God will give him life and virtue. Misses and their mamma walked yesterday after dinner to see their cousin Allington. Miss Kate wished she might see him, so I gratified her little person. This is all at this time from yours most entirely."

"To see any one preparing and taking their way to see what I long to do a thousand times more than they, makes me not endure to suffer their going without saying something to my best life ; though it is a kind of anticipating my joy when we shall meet, to allow myself so much before the time ; but I confess I feel a great deal that, though I left London with great reluctance, yet I am not like to leave Stratton with greater. They will tell you how well I got hither, and how well I found our dear treasure here. Your boy will please you ; you will, I think, find him improved, though I tell you so beforehand. They fancy he wanted you ; for as soon as I alighted he followed, calling Papa ; but, I suppose, it is the word he has most command of ; so was not disoblged by the little fellow. The girls were fine, in remembrance of the happy 29th September (Lord Russell's birthday), and we drank your health after a red-deer pie ; and at night your girls and I supped on a sackposset ; nay, Master would have his room, and for haste burnt his fingers in the posset ; but he does but rub his hands for it. . . . I would fain be telling my heart more things—anything to be in a kind of talk with him, but I believe Spenser stays for my dispatch ; he was willing to go early, but this was to be the delight of this morning and the support of the day. It is performed in bed, thy pillow at my back ; where thy dear head shall lie, I hope, to-morrow night, and many more, I trust in His mercy, notwithstanding all our enemies or ill wishers. Love, and be willing to be loved by

"R. RUSSELL."

In September 1682 she concludes a letter thus :—

"I know nothing new since you went ; but I know as certainly as I live that I have been for twelve years as passionate a lover as ever woman

was ; and hope to be so one twelve years more. Happy still, and entirely yours,
" R. RUSSELL."

Alas ! before twelve *months* had passed, this life of happiness was roughly broken in upon, and her innocent husband was killed on the scaffold.

The circumstances under which he suffered made him a martyr. His danger made her a heroine. She wrote to him in 1683 as he sat in the Tower a prisoner on a charge of treason :—

" Your friends believing I can do you some service at your trial, I am extreme willing to try. My resolution will hold out—pray let yours. But it may be, the Court will not let me ; however, do you let me try."

He consented to do so, and her resolution did hold out. The story of his trial is so familiar, or ought to be so, that much detail of it is unnecessary. If our younger readers need to be informed where they may best get at the truth of the black business, we refer them to Lord John Russell's *Life of his ancestor*.

Suffice it to say here, that Lord William had ever spoken for liberty, Protestantism, and the right of resistance to unconstitutional acts on the part of the sovereign. These principles were adverse to Charles II. and his brother the Duke of York, afterwards James II., and he was murdered. A noble, reticent, brave, good man,—one in whom was nothing of the braggart or the demagogue ; he seems to have been alike worthy of the love of his heroic wife, and of the hatred of his king.

He was treated with injustice at every step of his trial. The jury was not a legal one. There was no Act of Parliament under which he could legally be tried on his indictment. The witnesses against him were discreditable ; and even if credible, not in law sufficiently numerous to justify condemnation. And—which was, however, then the custom—he was not allowed counsel.

But he was not deserted. Many of England's best and noblest stood forward to witness for him, where none but the basest testified against him. And his noble wife's resolution thus held out.

Lord Russell.—"May I have somebody write to help my memory?"

Mr. Attorney General.—"Yes : a servant."

Lord Chief Justice.—"Any of your servants shall assist you in writing anything you please for you."

Lord Russell.—"My wife is here, my lord, to do it."

Lord Chief Justice.—"If my lady please to give herself that trouble."

She rose at once, the brave and loyal wife, and took her place with quiet dignity. During the whole of that dismal trial she sat there, writing for him ; and we read that she so far controlled the natural feelings of her woman's nature, that she neither disturbed his attention or the court throughout it all.

He was declared guilty of high treason, and next day was sentenced to be hanged. The king afterwards changed the mode of death to decapitation.

From the day of his arrest he knew and said that nothing short of his death would satisfy his enemies, and he said so still. But Lady Rachel left no effort untried to save him. She flung herself at the feet of the king ; she petitioned, and induced others to petition. As Lord Russell exclaimed, with tears in his eyes, "she beat every bush for his preservation." He would not hinder or discourage her, for he knew how much her sorrow would be mitigated afterwards by the reflection that she had left nothing undone. But, notwithstanding her reposeless anxiety to save him, she would never tempt him to buy existence by renouncing principle or confessing guilt. Dr. Tillotson and Dr. Burnet both endeavoured to induce him to allow that resistance of authority

was unlawful : the latter believed that Charles would have pardoned him if he had done so. But he was firm, and true to the opinion that "a free nation may defend their religion and liberties when invaded and taken from them, though under pretence and colour of law." And his high-minded wife supported him in his steadfastness.

His enemies were swift in their fell work. Seven days only were allowed to elapse between his trial on the 13th of July, 1683, and his execution. Burnet was with him every day, and he testifies abundantly to the magnanimity of Lady Rachel and the tenderness of her husband. "I never saw," he says, "his heart so near failing as when he spake of her. Sometimes I saw a tear in his eye, and he would turn about and presently change the discourse."

The night before his execution she left him at ten o'clock. "He kissed her," says the same eye-witness, "four or five times ; and she kept her sorrow so within herself, that she gave him no disturbance at their parting. After she was gone, he said, 'Now the bitterness of death was past,' and ran out into a long discourse concerning her, how great a blessing she had been to him, and said what a misery it would have been, if she had not had that magnanimity of spirit joined to her tenderness, as never to have desired him to do a base thing for the saving of his life. He said there was a signal providence of God in giving him such a wife where was birth, fortune, great understanding, great religion, and a great kindness to him. But her carriage in this extremity went beyond all."

She left him, we say, at ten o'clock at night. The harsh gates of Newgate prison, which had grated so often during the past week as the obsequious turnkey swung them open for her admission, clashed behind her for the last time. She would not need to go there any more. The hopes which she had cherished during that long week to save him

—to have him reprieved, if nothing else—were all scattered on the winds. The delicate and high-born lady, like the wife of the meanest felon, had parted from the husband of her youth and the father of her children, in his dreary dungeon, and she was never to see him again alive. Never! unless her loving eyes could bear to look upon the awful scene in Lincoln's Inn Fields, when he laid the head which had been so often pillowed on her bosom on the block, and the inexperienced headsmen hacked it from his shoulders. Never! did we say? The dismal sound of those gates as they groaned on their hinges was the last which she heard as she left him, and it rang long and sadly in her ears: but it was ere long drowned by the praises and acclamations of a nation whom her husband's blood helped to set free; and long, long ago, the martyr for liberty and the pious wife whom he loved have rejoined each other, and entered, we may reverently hope, upon a life of joy to which their earthly happiness was as nothing, and which no tyrant can ever again destroy.

This was the melancholy climax of her story. The remainder of her life, as might be expected from the former part, was characterised by piety and meek firmness, but a veil of sorrow was over all. At first she describes herself as "*amazed with grief.*" Soon afterwards she writes,—

"My heart mourns too sadly, I fear, and cannot be comforted because I have not the dear companion and sharer of all my joys and sorrows. I want him to talk with, to eat and sleep with. The day is unwelcome, and the night so too; all company and meals I would avoid, if it might be."

She dwelt upon those hasty scenes, reflecting anxiously whether everything possible had, after all, been done to save him. Her heart shrank when she looked on his and her children, and remembered the pleasure he took in them.

But religion had been the basis of her happiness during her husband's life, and it was her support now.

“ 'Twas, doctor, an inestimable treasure I did lose,” she writes to Dr. Fitzwilliam, “and with whom I had lived in the highest pitch of this world's felicity. But having so many months mourned the subsiance, I think, by God's assistance, the shadows will not sink me.” “I endeavoured to suppress all wild imaginations a melancholy fancy is apt to let in, and say with the man in the Gospel, ‘I believe, help Thou my unbelief.’”

Her chief thoughts (next to her husband's memory) were given to her children. She speaks most anxiously of her “young creatures;” she thinks how she can help, and teach, and be an example to them; and in her efforts to do her duty by them she was warmly and affectionately aided by the old earl, her lord's father.

She saw them all well settled. Her eldest daughter was married, in 1688, to Lord Cavendish, eldest son of the Earl (afterwards Duke) of Devonshire, just one week before the trial of the seven bishops for “resistance” in matters spiritual to James, then King of England, and just one week before the young bride's father-in-law elect signed the invitation to William of Orange to come and take the throne, which it was intolerable that the Stuart line should disgrace any longer. Of that invitation we all know the glorious result. The “Divine Right” of kings became a byeword; and not only was “resistance” made lawful, but, as Defoe says, “the right of the people was established to limit the succession of the Crown.” Of Lady Rachel's sympathy with these movements we need not adduce proof: her regret was that her lord had not lived to rejoice in them with her. William had sent her his expressions of condolence on her husband's death; and one of the first acts of the reign of that great, and noble, and stern sovereign, was the reversal of Lord

Russell's attainder, and the declaration that his execution was a "murder."

Lady Rachel's second daughter was married, in 1692, to Lord Roos, eldest son of the Earl of Rutland; and her son, in 1695, to Miss Howland. These marriages all took place, as was too often the custom in those days, when the contracting parties were mere children. Lord Tavistock was only fifteen years of age, and was preparing for college when he married. Some friends wished at the same time that he should stand for the representation of Middlesex, but to this Lady Rachel gave a decided refusal. Next year he was sent to Cambridge, where he remained some time, and he then went abroad for two years with his tutor. While in Italy he gambled, and lost large sums of money; and a most pathetic letter is extant from his mother to the Duke of Bedford, asking his assistance to pay them.

In the next year the old Duke died, and Lady Rachel's son succeeded to the estates and title. The latter, as the preamble to the patent states, had been made from an earldom into a dukedom, to comfort one of the best of fathers for so unspeakable a loss as the death of Lord William, to solemnize the memory of that most excellent son, and to excite the emulation of a worthy grandchild, that he might, with more vigour, tread in the steps of his truly great father. King William was most anxious to do all that lay in royal power to prove his esteem for and sympathy with the family of his predecessor's victim.

But the young Duke did not very long enjoy his honours. In 1711 he was seized with small-pox. In our time we have but little conception of the ravages of that dreadful plague, or of the terror which its presence excited. The duchess and her children fled, but his faithful old mother would not fly. True to the last to the son, as to the father, she remained by the dying man, and gave him all the com-

fort and consolation in her power, to the very end of his mortal journey.

Of the rest of that life of patience, and love, and sorrow, we say no more. It was protracted to a great age, for she was eighty-seven when she died. To the last she exhibited the same virtues that had made her life lovely, and she was respected as well as loved by all who knew her. She died on her husband's birthday, the 29th Sept. 1723; and she was buried at Chenies, by his side. To her surely, if to any mortal, the language of holy Mr. Herbert may be applied, where he says,—

“ The actions of the just
Smell sweet, and blossom in the dust.”

Of her Letters, as such, we need not speak further. They neither show brilliancy nor wit. She was too much of a woman ever to have been a blue-stocking, if she had lived further on in the century. But they contain what many letters of far more literary persons are wholly devoid of,—simplicity, gentleness, shrewdness, genuine womanliness, and devotion to Truth. They open to those who read them, knowing her Life, a view of humanity unequalled in fiction; and to all true women she must ever be, like Adonais to the poet,—

“ A star
Which BEACONS from the abodes where the Eternal are.”

C. M. C.

SCENES IN HISPANIOLA.

II. THE MACORNING.

THE priest's mule was caught and saddled, and he himself, having brought out his fowling-piece, which bore marks, in its cleanness and brightness, of frequent use, set foot in stirrup. He was clad in a suit of faded black, (for though the rays of the sun were fervent, he never so far forgot the dignity of his cloth as to go abroad in coloured garments,) consisting of breeches and a *chaqueta*, or sort of sleeved tunic fastened down the front with a row of small pearl buttons. A shot-belt and powder-horn were slung over his shoulder, and a very expansive *sombrero* of plaited palm-leaf shaded his person, and almost his beast also, from the vertical ray. A cur of mongrel breed, but trained to aid in sporting excursions, followed the heels of the party as they set out.

The sun was fast climbing the sky, and was pouring down his torrid beams unmitigated by a breath of air, for the land-wind of the night had died away, and the sea-breeze had not yet come in. As soon, therefore, as the travellers had left the grateful shadow of the village-groves, they found themselves almost as in a furnace. The priest was inclined to corpulency; he had wiped his face, and fanned himself with his *sombrero* till the scorching of his bald pate made him put it on again; and at length he sued for a truce. "*Tente! tente!* I am melting," said he, dolefully; "presently you will see nothing but a mass of melted grease running down the mule, instead of *un pobre heremito*. Let us draw up beneath this caimite for a few moments."

The evaporation of the foliage produced a coolness under

the umbrageous tree, that refreshed the feelings, and even caused a current of air, sufficient at least to flutter the beautiful leaves, and to display the contrasts of colour, glossy green above, and golden bay on the under surface, by which they are distinguished. A rapid tapping was among the boughs, and Don Carlos, whose eye and ear were awake, directed the attention of his companions to it.

"Ah!" said he, "that is a beautiful species of the woodpecker tribe."

"We call it the *carpentero*, because it hacks and hews the timber," replied Gomez.

"Nay, that is my bird," said the Padre; "I must not have him called a *carpentero*. Look at his scarlet cap and thighs. Do carpenters wear the red hat and hose? No, no, he is something better than a carpenter! Don Carlos, I love to look on that bird."

"I am pleased to find you can admire the beautiful in Nature, it does honour to your taste, Padre Tomaso: but why do you specially honour this species?"

"Don Carlos de Badajar," said the priest, with dignity; "I am but a poor priest, *un pobre heremito*, but poor priests do sometimes live to be cardinals. There was his late eminence, Cardinal Gonsalvo, of whom, doubtless, you have heard; he was once only a poor Dominican friar in the very convent of San Geronimo de Borja, where I spent many years. When I look at this bird, all clothed in black as he is, except his scarlet hat and hose, he raises my hopes, and I say, 'Who knows?'"

"Here comes the sea-breeze at last," said Gomez, as a cool air from the east rustled the foliage and swept over their sun-scorched faces. It increased, and presently sung in the topmost branches, and began to toss the broad fronds of the palma real, and to bend the tall yagrumos, as it swept across the plain.

The horsemen now emerged from the valley, and from a little eminence looked down on a scene of remarkable beauty. Before them was stretched an ample savanna, extending for many leagues, bounded on two sides by mountains, but in front terminating only at the horizon. Cultivated farms, fields smiling in the luxuriant verdure of waving sugar-cane, gardens of the broad-leaved plantain and banana, cottages surrounded by cocoa-nut palms and orange-groves, were scattered here and there; but the greater part consisted of rich grass, studded with many majestic trees, and divided by irregular narrow belts of forest. Cattle in groups were peacefully grazing, or ruminating beneath the shadowing trees; and through the midst of the landscape rolled the clear Iasse, like a ribbon of steel, save where it reflected the golden refulgence of the sun.

“Padre Tomaso,” said Señor Gomez, “my neighbour Quevedo is collecting his tribute this week. I had thought of going with my young friend up the Pardave mountains, but what do you say to our turning down to Quevedo’s hatte, and showing Don Carlos a macorning?”

“*Con mucho gusto, Señor*; but as to my poor self, I must beg his excellency to excuse me, for the distance is rather long for my mule with me upon her, who, as you see, am no feather. Besides, I think I see some *garzas* yonder up the river that I should very much like to have a pop at. So, if you please, I will take a shot or two in the savanna, and will expect the honour of your company to dinner as you return.”

To this arrangement, unwilling as our friends were to lose the society of their agreeable companion, they could offer no impediment; and they parted, the priest with his dog and gun to the banks of the glistening Iasse, and the Señor and his guest to the hatero’s farm several miles farther down.

Turning to the right as they broke from the valley, they pursued a road that led through the gloomy primeval forest at the mountain's foot. Gloomy it was, though a tropical sun, fast approaching the meridian, was pouring down his beams from an unclouded sky ; for so narrow was the path, so dense and tangled the forest on either side, and so lofty the trees, that not a ray of direct sunlight could penetrate to the ground through the foliage that met and intertwined a hundred feet above their head. And yet it was a delightful transition from the torrid heat of the savanna into this cool green-wood shade ; and the tender light that was shed by the sun-rays playing on the quivering leaves of the forest-roof, was most refreshing to the eye wearied with the glare of open day.

Though there was little of animal life, beast, bird, or insect, visible in these dark woods, there was a great deal to interest the intelligent stranger in the forms of the trees, and of their foliage ; in the many herbaceous plants that made the underwood ; in the lianes that hung and stretched rope-like from tree to tree ; in the fantastic parasite plants, often adorned with splendid flowers, that sprang from the trunks, or clustered on the branches ; and in a thousand other charms that vegetation presents in those teeming regions.

Don Carlos having complained of thirst, the planter peered carefully into the depths of the forest as he rode along, and in a few minutes he begged his companion to alight, and come with him a few steps. Then taking the machette, or hanger, from the negro, he seized a stout, rough vine that was depending in a loop from the bough of a tree, and with one blow of the cutlass severed it, bidding his companion apply one part to his mouth, while he did the same with the other. Half a pint of cold water, perfectly limpid and tasteless, flowed from each, and quenched their thirst.

“In order to understand what you are about to see,” said Señor Gomez to his guest, “I must tell you that we *hateros*, that is, owners of cattle-breeding farms, are charged with a yearly tax or tribute, which is assessed according to the extent of the *hatte*. Of money we have little, and we therefore pay the tribute in cattle or horses, or whatever stock we raise, for the supply of the capital, St. Domingo. The *hatte* to which I am taking you rears horned cattle, but as we pass I may be able to show you a horse-*hatte*.

“We divide cattle here into four sorts, according to their habits ;—the domestic, which constantly graze around the dwelling-house ;—the gentle, or those which, though they rove in the pastures, will come at the sound of the herdsman’s voice to be milked ;—the shy, which form herds on the savannas, each under the charge of an old bull, and which can only be driven and caught by men on horseback ;—and the wild, which roam the woods and mountain-fastnesses, and must be hunted and shot down. Those which are to be caught to-day are of the third class.”

By this time the party had emerged from the forest, and were again on the open hill-side, with the wide savanna spreading for leagues beneath them. Again the course of the river was seen, but much increased in the volume of its waters by the accession of several tributary streams. In some places it was hidden by tangled thickets of black-withe and bushes of *guayabo*, completely covered with bright-blossomed creepers ; but in others, especially on the side nearest to the observers, the grassy meadows shelved smoothly down to the water’s edge. The stream occasionally opened into silvery sheets of water ; and on the opposite side extended a broad morass covered with reeds, in which flocks of tall flamingoes with scarlet plumage were stalking, like companies of English soldiers, intermixed with white and grey herons. From the midst of this morass a grove of

fan-palms was growing, spreading their strange plaited leaves abroad, while the whole savanna was varied as before with trees of many kinds, with groves, and clumps, and thickets, and enamelled, like a garden, with flowers, the hues of which, softened and blended, could be seen even where the travellers stood. Immediately below them was the horse-farm of which the hatero had spoken. It was an extensive portion of the savanna, reaching down to the river, and bounded by a belt of woods on one side ; the other boundary was not seen from this spot, though several square miles of the estate were visible. Horses were scattered about, not feeding singly, but gathered into herds, each of which was guarded by a stallion, usually conspicuous by his superior size and mien ; and this order, as Gomez declared, was always observed ; no horse or mare ever forsaking its own herd to join another ; though terrible combats sometimes ensued between rival stallions, each desiring to embrace under his own sway his rival's dominion.

Half-an-hour's riding now brought them to Quevedo's hatte, which was separated from that of the horses only by the woods above mentioned. Here an animated scene was displayed ; the cattle were in groups, but most of these were congregated in a distant quarter, each group huddling together, behind its bull-leader, who, with lowered head and deep muttered bellowings, was pawing the turf. In the foreground a number of horsemen were galloping about, chasing with wild cries the alarmed cattle, which were scampering, with loud lowings and stiffened tails, in all directions. At first it seemed a scene of meaningless confusion ; but it was soon manifest that the horsemen were aiming at one special object, the separation of a particular beast from the herd, which they accomplished by heading it, as it sought to hide itself among its fellows, and by goading it with long lances.

Descending a little nearer to the scene of action, the Don was able, with the explanations of his guide, to see intelligently what took place. The majoral, attended by his pioneers, selected a comely young bullock, which he pointed out to the lancers. They, mounted on their thorough-bred steeds, immediately pricked it off, meeting it with shouts and cries in its doublings and attempts to escape. The steer was swift and courageous; sometimes, regardless of the outcries, and even of the lances, he dashed through his pursuers, with flanks streaming with blood, and rejoined his herd, whence, however, he was quickly severed again. At length one of the riders, spurring his horse close behind the bullock, suddenly leaped off and seized the animal's tail, twisting it round with great rapidity and force, until the poor beast, roaring with pain, fell on his knees. The man, at this instant, a stout muscular negro, jumped on the bullock's neck, and, with amazing dexterity, twisting its head round, forced the horns deep into the soft earth, where it lay almost helpless.

Meanwhile another ox, already caught and manacled, was led up by means of a cord to the prostrate beast, which was coupled to it with ropes of twisted thongs; then, being released, both were driven into a pen in one corner of the hatte, formed of logs of heavy timber. The pair of cattle so coupled the hatero called a *macorne*, and the process a *macorning*.

One bullock driven to desperation at length stood at bay; no longer seeking to escape, he made a fierce plunge at the nearest horseman, who evaded the assault only by the most cool courage, and by his perfect command of his horse. The bull instantly turned upon another; and for a few minutes he was the pursuer, and his foes the pursued. It was judged impossible to take him alive, at least without too great a waste of time and personal risk; and, therefore, one

of the boldest of the lancers awaited his desperate assault, and received the infuriated beast upon the point of his levelled lance, the weapon piercing deep into his left breast beneath the shoulder, and, as was presently found, cutting the heart in sunder. The poor animal fell over in an instant, and two men alighting cut its throat with their sharp knives, and immediately disembowelled it.

In the meantime another beast, which, though subdued, obstinately refused to move, was also slaughtered; and the two carcasses were quickly dragged by horses to the bank of the river. Here each was flayed with great expedition; and while some of the men were engaged in cutting up the beef into quarters, which was neatly and skilfully done, others proceeded to make the fresh hides into impromptu boats. They first cut two stout stakes from some tough-wooded tree, with their heavy knives, and binding them in the form of a cross with thongs of the raw hide, proceeded to stretch the skin over the cross, gathering the sides together with similar thongs. Thus two square receptacles were soon formed, which being carefully launched on the surface of the river, were held by some, while others steadily stowed the beef in the concavity, beneath the cross-stakes. It was a ticklish boat, certainly, and the slightest carelessness would have swamped it; but the negroes worked with the rapidity, precision, and nonchalance of men well used to the contrivance, and the stowing of the meat was effected without any mischance. As soon as both boats were loaded, one man took charge of each, floating them down the mirror-like river on their way to St. Domingo.

Picturesque was the whole scene, and fully appreciated by the young Spaniard, as he rode to and fro with interested curiosity. The boatmen prepared themselves for their mission by stripping off the camisa of pink and white check, which they had worn, and binding it like a turban around

the head, leaving only the tanga, or waistcloth, around the body ; that they might be more unincumbered in the alternate swimming and wading which now devolved upon them. Then in they plunged, each pushing his frail bark before him as he swam down the stream, till hidden from view by the intervening thickets of inga and acacia, festooned with convolvulus. The smooth face of the river, especially in the broad pools and bays, was embellished with large white water-lilies, each sitting like an Eastern sultana upon its carpet of floating leaves, which rose and sank on the wavelets raised by the strokes of the swimmers. The swift water-tortoise was seen shooting along in the clear depths ; and the grinning jaws and uncouth head of a crocodile suddenly projected from the opposite reeds, but instantly disappeared, as the huge reptile took cognisance of the noisy throng. Φ

L'ENVOI

TO "THE NUN'S CONFESSION."

THE child invents a playmate's voice,
And, busied all alone,
Will fashion questions and replies
In quaintly varying tone :
So while the poet sings, he still
Makes listeners of his own.

The tale has wept itself to sleep :—
Methinks some turn aside

Disheartened that the lonely voice
Abrupt, unanswered, died ;
That those sad arms stretched up to Heaven
Sank down unsatisfied.

And Fancy to a brighter close
Would fain the notes prolong :
She strives to snatch the lyre from Truth,
She fain would right the Wrong ;
But though her strength be angel-strength,—
The Truth is yet more strong.

Across the seas, stormy and dark,
Mastering the loud wind's roar,
One last long cry of wild despair
Has reached us on the shore ;
But from the crowded raft rise up,
Unheard, a thousand more.

Let not our nice fastidious ears
Reject the jarring sound ;
To Heaven it rises, and from thence
The answer will be found :
Sooner or later Abel's blood
Cries from the conscious ground.

The steps of an avenging Power
Are ever shod with wool,*
Till the last moment all unheard :
But, when the times are full,
Where shall they flee who stood between
Christ and the sinner's soul ?

F. A. P.

* *Dii laneos habent pedes.*

THE ORMER-SHELL OF THE CHANNEL ISLES.

ON the shores of the verdant Southern Isles, and on the rocky coast of California, a genus of shells is found, resembling a good deal the shape of the human ear, and named from that circumstance *Haliotis*,* or Sea-ear. The species from New Zealand, in large specimens, measures six inches in length and five in diameter, is deeply concave internally, and somewhat roundedly oval in shape. The outer surface is of a rufous grey colour, while the internal nacreous face is of a beautiful azure blue, bespangled with a lively iridescence. The Californian shell measures eight inches in length and six in diameter, and is slightly flatter and more oval in form. As might be conjectured, from its native habitation, it is rough and rather coarse externally. Its outer coat is of a red colour, but internally it is gorgeous with green, red, and gold, and its iridescence is splendid. From its flavour the natives of New Zealand call the animal of their shell the *mutton-fish*, and find it a wholesome article of food.

Many other species of rare beauty and elegance occur in various other parts of the world, and one species extends its range to within a short distance of our own sea-girt isle. A stranger from England, setting his foot for the first time on the pretty island of Jersey, or on the interesting shores of Guernsey, and walking down to the beach at the low equinoctial spring-tides, when the rocks are to a great extent laid bare, will perhaps be surprised to find a shell there which he never saw on his own coasts at home. The largest limpet, of which there are myriads, and of a goodly size, adhering to these craggy rocks, dwindles into insignificance compared with it; the sombre grey conical *Patella* contrasts

* ἁλίοσ, of the sea; οὐρ, ὠτὸς, an ear.

but poorly with the sparkling and elegant *Haliotis*, while the opaque and dull interior of the one cannot for a moment be compared with the lustrous polish and the rainbow-like lining of the other. The occupant, too, of the ear-shell, though considerably resembling the limpet, is a much more beautiful creature. It is variously tinted with brown, green, white, and salmon colour, and along the sides of the body is a series of lobes, green tipped with white, and thickly fringed with short cirrhi, which, when the animal is seen alive, wave to and fro with a graceful undulatory motion. The shell itself in adult specimens measures from three to four and a quarter inches in breadth, and from two to three across from side to side. In form it very much resembles the human ear, and it has received from the natives of the Channel Isles the name of *Ormer*, a corruption of the French “*Oreille de Mer*.” It is rather flattened in shape, and of an oval contour. The external surface is wrinkled and striated, and generally coloured of a reddish brown tint, mixed with blue and mottled with white. The internal surface is lined with a soft and silvery nacre, which is beautifully iridescent. The spire of the shell, for though flat it has a spire, is very small, and placed, as it were, on one side; and along the left edge of the shell there runs a ridge perforated with small holes, which have a prominent margin, and become filled up and flattened near the spire as the shell increases in size.

These handsome molluscs are inhabitants of the very verge of the littoral zone, living near and under rocks and stones. They were formerly much prized as an article of food; and the older inhabitants of Guernsey inform us, that when well beaten and properly cooked, they are exceedingly good eating,—tasting like veal cutlets. Of late years, however, they have fallen into disuse; and it is not easy to find a cook who knows how “to do them to a turn.” Twenty years ago the empty shells were thrown out on the beach in

basketfuls, after the animals had been eaten, and they might be picked up as plentifully on the sand as empty oyster-shells elsewhere. Since the great increase, however, of the manufacture of *papier-maché* work, in which mother-of-pearl is employed, these shells are seldom to be seen. Great quantities are sent yearly to the manufactories of Birmingham; and the little Guernsey children now know the value of the Ormer, and pick up every specimen. During the summer months a person may wander along the shores for miles and not see a single shell. But guided by an instinct which is not quite understood, the animals make periodical visits to the shores, where they cling to the rocks visible at low water, or hide under the stones; and after a short sojourn, they retire, and creep back to deeper water. It is generally about the time of the very low tides of March or April that they are to be met with in the greatest abundance, and large quantities are then caught by the parties who go out to collect the *vraie*, or seaweed, for their manure and firing.

A small bay in Guernsey, called Cobo Bay, lying on the north side of the island, is a favourite resort of these molluscs. To Cobo Bay, from St. Peter's Port, is a pretty walk of nearly three miles. Skirting the foot of the hill on which Catel Church is built, passing neat cottages with their pretty flower-gardens, where myrtles and orange-trees thrive well, and where the jasmine and vine cover the sides of the house with their elegant foliage, and where wild flowers of great beauty are met with at every step, the pedestrian at length emerges upon a low sandy bay. Close up to high-water mark is fine sand, but farther out huge rocks extend into the sea, some in the form of a serrated ridge, covered with seaweed, others rising high and bare into lofty spires and pinnacles. Woe to the luckless mariner whose storm-tossed barque is stranded on that rough and

rocky shore ! Certain destruction awaits him. In Catel churchyard a simple and rather rudely-sculptured monument is seen erected to commemorate such an event, which a few years ago befell an unfortunate vessel with cargo and passengers from the Havanah. Dashed against the rocks which form one side of the bay, it was speedily broken in pieces, and every soul but one found a watery grave. Since the great increase of steam-vessels, shipwrecks have become comparatively rare ; but the writer was told by a lady who lived for years near that coast, that the sullen boom of the gun, giving the signal of a ship ashore or in imminent danger, was of such frequent occurrence, and the knowledge that no human aid could be of any avail so painfully certain, that they ceased to be disturbed by its roar ; and breathing a prayer for the unfortunate mariners, they remained at rest till morning's dawn should unfold to them what the storm of the night had done. It is amongst these rocks, however, and far out, at low water, that the Ormer dwells ; and a stroll in a fine day, when the sea is calm, scrambling amongst the seaweed, and leaping over the pools where the beautiful actiniæ are to be seen with their lovely tinted tentacles, is a treat of no ordinary nature. The islands of Jersey and Guernsey abound in beautiful bays and little harbours, where the naturalist and lover of fine scenery may indulge their tastes to their hearts' content. The inhabitants are exceedingly civil and polite, the walks varied and full of interest, and the climate mild and salubrious. A summer month may be spent most delightfully on these quiet shores ; and a visit to the curious and romantic-looking little island of Serk would alone repay the *désagrémens* of the voyage from Southampton to Newhaven.

W. B.

BRITISH MINING.

COAL.

AMONGST the numerous phenomena, registering the earth's mutations, which have been developed to man, by the aid of geological science, none possess greater interest, or afford more subjects for contemplation, than those connected with the extensive coal-formations of Great Britain.

If we cast our eyes over a geological map of our island, we find sundry black patches of colour indicating the localities in which coal is found. First, there is the Scotch coal-field extending from sea to sea, embracing Edinburgh and Glasgow; then the valuable district of Northumberland and Durham, followed by the extensive coal-fields of the West Riding of Yorkshire and the equally important ones of Lancashire and Staffordshire. Smaller patches are seen scattered through Leicester and the counties westward. Glamorganshire presents an extensive coal district—and in Pembrokeshire we have another—producing a coal known as anthracite. With the Forest of Dean and the Bristol coal-field in Gloucestershire, the coal-formations terminate southward. These form a total area of 4068 square miles, and include at least 3000 working collieries. The coal-fields of Ireland embrace areas equal to 2227 square miles; but these are not developed with the same amount of industry and skill as those of England and Scotland.

Coal occurs in *beds*—these should be especially distinguished from the *veins* or *lodes* in which the metalliferous deposits are formed. Generally the coal-formations give

evidence of their having been produced in a nearly horizontal position. This has, not unfrequently, been altered considerably by movements subsequently to the deposition of the matter forming the coal, and therefore now in many of our mines the workings on the coal-beds are at a high inclination.

If the reader will imagine an immense lake, or a large delta, in which a series of deposits, differing in their character, has been formed, a section of these will give the appearances which present themselves in a section of our coal-measures. To adopt a yet more simple illustration: clay and coal-dust, we will suppose, are thoroughly diffused through the water contained in a deep vessel. According to the laws of gravity, the clay will subside first, and then the lighter coal-dust, leaving the water eventually clear. More clay and coal-dust are mixed with the water; we shall then have another deposit similar to the first, and this we may repeat any number of times. Our deposited mass would at last present a section such as that shown in the adjoining figure, the thicknesses of the bands of coal and clay depending upon the quantities of each held in suspension by the water.

This is merely an indication of the conditions of *bedding*, and is not to be considered as an explanation of the actual formation of coal. Chemical analysis and microscopical examination equally prove the vegetable origin of coal.



Many coal-beds clearly indicate that the plants from which they are formed grew and died upon the spot where the coal is now found, whereas others as evidently appear to show that the vegetable matter has been brought from some distant locality. In some the condition of absolute

rest is shown, while in others an unmistakable disturbance is evident. The former of these conditions indicate a vast swamp upon which plants grew, died, and sunk—the latter, the drifting of matter into a large delta, such as that of the Mississippi or the Niger, in which analogous formations to those of our coal-beds are now going on. Indeed, in some of the low valleys on the banks of the great American river we have all the conditions, on a comparatively small scale, regularly accruing, which appear to have prevailed during the formation of our coal-fields. In these large swamps the progress of vegetation is exceedingly rapid; and for a period of five, eight, or ten years, plants are rapidly growing, and being of a succulent nature, they quickly decay. The great floods of the Mississippi occur with considerable regularity, and the vegetation of these swamps being then overflowed, and the torrents from the mountains bringing down immense quantities of detrital matter, it is entirely buried. The flood subsides, the soft vegetable matter sinks under the pressure, and on the new surface of mud a young vegetation commences and rapidly extends itself over the space, and increases in size. This occurring again and again, gives rise to the formation of bands of vegetable matter, and of sand or clay, such as those already described. In the peat-bogs of Ireland we have also conditions analogous to those which probably prevailed when our coal was forming. Chemical analysis and microscopic examination equally prove that coal is of vegetable origin. In many varieties of coal the vegetable structure is evident throughout the mass: in others it is nearly obliterated by the changes to which the mass has been subjected. The whole process of the formation of a coal-bed has been so carefully described by the graphic pen of Hugh Miller, that we make no excuse for introducing words which cannot, for their power of picture-painting, be excelled. We see—

“A low shore thickly covered with vegetation. Huge trees, of wonderful form, stand out far into the water. There seems no intervening beach. A thick ledge of reeds, tall as the masts of pinnaces, runs along the deeper bays, like water-flags at the edge of a lake. A river of vast volume comes rolling from the interior, darkening the water for leagues with its slime and mud, and bearing with it to the open sea reeds and fern and cones of the pine, and immense floats of leaves, and now and then some bulky tree, undermined and uprooted by the torrent. We near the coast, and now enter the opening of the stream. A scarce penetrable phalanx of reeds, that attain to the height, and well-nigh the bulk, of forest-trees, is ranged on either hand. The bright and glossy stems seem rodded like Gothic columns, the pointed leaves stand out green from every joint, tier above tier, each tier resembling a coronal wreath or an ancient crown, with the rays turned outwards, and we see a-top what may be either large spikes or catkins.

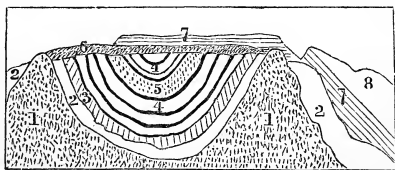
“What strange forms of vegetable life appear in the forest behind ! Can that be a club-moss that rises its slender height for more than fifty feet from the soil ? or can these tall, palm-like trees be actually ferns, and these spreading branches mere fronds ? And, then, these gigantic reeds ! Are they not mere varieties of the common horse-tail of our bogs and morasses, magnified some sixty or a hundred times ? Have we arrived at some such country as the continent visited by Gulliver, in which he found thickets of weeds and grass tall as woods of twenty years’ growth, and lost himself amid a forest of corn fifty feet in height ? The lesser vegetation of our own country, its reeds, mosses, and ferns, seem here as if viewed through a microscope : the dwarfs have sprung up into giants, and yet there appears to be no proportional increase in size among what are unequivocally its trees. Yonder is a group of what seem to be pines—tall and bulky, it is true, but neither taller nor bulkier than the pines of Norway and America ; and the club-moss behind shoots up its green, hairy arms, loaded with what seem catkins above their topmost cones.

“But what monster of the vegetable world comes floating down the stream, now circling round in the eddies, now dancing on the ripple, now shooting down the rapid ? It resembles a gigantic star-fish, or an immense coach-wheel divested of the rim. There is a green dome-like mass in the centre, that corresponds to the nave of the wheel, or the body of the star-fish ; and the boughs shoot out horizontally on every side, like spokes from the nave, or rays from the central body. The diameter considerably exceeds forty feet ; the branches, originally of a deep green, are

assuming the golden tinge of decay; the cylindrical and hollow leaves stand out thick on every side, like prickles of the wild-rose on the red, fleshy lance-like shoots of a year's growth, that will be covered two years hence with flowers and fruit. That strangely-formed organism presents no existing type among all the numerous families of the vegetable kingdom.

"There is an amazing luxuriance of growth all around us. Scarce can the current make way through the thickets of aquatic plants that rise thick from the muddy bottom; and though the sunshine falls bright on the upper boughs of the tangled forest beyond, not a ray penetrates the more than twilight gloom that broods over the marshy platform below. The rank steam of decaying vegetation forms a thick blue haze, that partially obscures the underwood. Deadly lakes of carbonic acid gas have accumulated in the hollows, there is a silence all around, uninterrupted save by the sudden splash of some reptile fish that has risen to the surface in pursuit of its prey, or when a sudden breeze stirs the hot air, and shakes the fronds of the giant ferns, or the catkins of the reeds. The wide continent before us is a continent devoid of animal life, save that its pools and rivers abound in fish and mollusca, and that millions and tens of millions of the infusory tribes swarm in the bogs and marshes. Here and there, too, an insect of strange form flutters among the leaves. It is more than probable that no creature furnished with lungs of the more perfect construction could have breathed the atmosphere of this early period and lived."

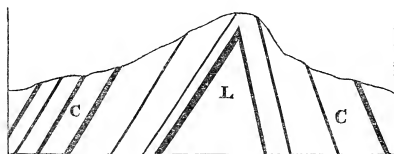
Exceptions may be taken to the views regarding the existence of animal life at this period, but this is a discussion into which it would not be convenient to enter in the present paper. The conditions which are so beautifully described by the author of "The Old Red Sandstone" will render intelligible the annexed diagram:—1 is the old red sandstone formations, which exist below the coal-measures.



Upon this extensive series of rocks we have the deposit of

the mountain limestone (2). Subsequently to this a coarse sandstone formation occurs, known as the millstone grit (3); and above this we have the coal-seams (4) occurring with their beds of under-clay. The pennant, a coarse sandstone formation (5), occurs above the coal; then we find, in succession, the new red sandstone, or red marl (6), the lias limestone (7), so called from its being deposited in *layers*, and above these occur the oolites (8). Such are the *general* conditions of a coal-field, although it should be remembered that there are peculiar exceptions to this order.

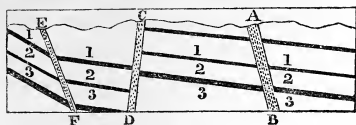
These formations are not unfrequently very much disturbed. Often we have evidence of uplifting of large districts, and of the subsequent denudation of the surfaces



of the hills so formed. The accompanying woodcut represents an elevation of limestone strata (L), in consequence of which

the coal-measures (C C) are thrown from their original positions into an arrangement nearly vertical. In all probability, this has been effected by some large mass of igneous rock, at no very great distance below the surface. Supposing the beds of coal to have been originally in a horizontal plane, or nearly so, they would have passed over the limestone; but since we find them *out-cropping*, or appearing on the surface, on either side of the limestone, we may fairly infer that a large mass of matter has been removed by denudation since the uplifting of the mass.

In some cases we have the coal-beds dislocated by *slips* or *dykes*. Sometimes we have these merely passing through



the coal-beds, as A B in the accompanying section, altering scarcely at all the direction of the strata. C D, however,

and EF, are the result of a considerable subsidence of the mass of ground constituting the coal-measures, and the same motion also alters the beds on the left-hand side of the section. These *slips* are analogous in their character to the *faults* already described in the papers on metalliferous mines. In both cases they are indications of great movements of the earth's crust. Frequently in the coal-fields the position of the coal-beds is so altered, that considerable cost becomes necessary before the bed can be rediscovered, and sometimes the dislocation and subsidence of the coal have been so great that it is entirely lost.

Having sketched out the mode of occurrence of the coal, we shall in another paper describe the methods employed for developing this important element of our national wealth.

R. H.

SUNSHINE AND SHADOW.

THE lark soars upward to greet the day,
Singing cheerily ;
In the sunshine the village children play,
Laughing merrily ;
But my heart responds not to sounds so gay,
For the shadow of sorrow lies dark on my way,
And sadly o'er life's rough path I stray,
Plodding wearily.

The fields with green 'neath vernal showers
Refresh the sight ;
And the tints of the rainbow are seen in the flowers,
Varied and bright ;
But o'er many a path in this world of ours
Heavy and threat'ning the storm-cloud lowers,
And the dial marks in shadow the hours,
Even in the sunlight.

Yet ever to us,—with the dial's aid,—
Is a lesson given ;
Measuring each step of its progress in shade
With the light of heaven.
Too often with sullen distrust surveyed,
Or with dark ingratitude repaid,
Are those gifts in mercy to us conveyed ;
Thus we cause life's flowers by our path to fade,
And the heart is riven.

As the lark soars upward with eager wing
From the grassy sod ;
And the flowers draw scent and hue as they spring
From the earthy clod ;
May earnest faith look heavenward still,
Deriving good from seeming ill,
Striving life's mission to fulfil,
Trusting in God.

B. L.

ARCTIC FOX.

(*Vulpes lagopus*.)

THIS inoffensive and pretty little creature is found in all parts of the Arctic lands. Its fur is peculiarly fine and thick; and as in winter this is closer and more mixed with wool than it is in summer, the intense cold of these regions is easily resisted. When sleeping rolled up into a ball, with the black muzzle buried in the long hairs of the tail, there is not a portion of the body but what is protected from the cold, the shaggy hairs of the brush acting as a respirator or boa for the mouth, and a muff for the paws. Our Arctic travellers have remarked, that it is a peculiarly cleanly animal, and its vigilance is extreme. It is almost impossible to come on it unawares, for even when appearing to be soundly asleep, it opens its eyes on the slightest noise being made. During the day it appears to be listless, but no sooner has the night set in than it is in motion, and it continues very active until morning. The young migrate to the southward in the autumn, and sometimes collect in great numbers on the shores of Hudson's Bay. Mr. Graham noticed that they came there in November and left in April.

Sir James Ross found a fox's burrow on the sandy margin of a lake in the month of July. It had several passages, each opening into a common cell, beyond which was an inner nest, in which the young, six in number, were found. These had the dusky, lead-coloured livery worn by the parents in summer; and though four of them were kept alive till the following winter, they never acquired the pure white coats of the old fox, but retained the dusky colour on the face and sides of the body. The parents had

kept a good larder for their progeny, as the outer cell and the several passages leading to it contained many lemmings and ermines, and the bones of fish, ducks, and hares, in great quantities. Sir John Richardson* observed them to live in villages, twenty or thirty burrows being constructed close to each other. A pair were kept by Sir James Ross for the express purpose of watching the changes which take place in the colour of their fur. He noticed that they threw off their winter dress during the first week in June, and that this change took place a few days earlier in the female than in the male. About the end of September the brown fur of the summer gradually became of an ash colour, and by the middle of October it was perfectly white. It continued to increase in thickness until the end of November.† A variety of a blackish brown colour is occasionally met with, but this is rare: such specimens, Ross remarks, must have extreme difficulty in surprising their prey in a country whose surface is of an unvaried white, and must also be much more exposed to the persecutions of their enemies. The food of this fox is various, but seems to consist principally of lemmings and of birds and their eggs. He eats, too, the berries of the *Empetrum nigrum*, a plant common on our own hills, and goes to the shore for mussels and other shell-fish. Otho Fabricius‡ says he catches the Arctic salmon as that fish approaches the shore to spawn, and that he seizes too the haddock, having enticed it near by beating the water. Crantz, in his "History of Greenland," evidently alludes to this cunning habit when he observes, "They plash with their feet in the water, to excite the curiosity of some kinds of fishes to come and see what is going forward, and then they snap them up ; and the Greenland women have learnt

* "Fauna Boreali-Americana." Mammalia, p. 87.

† Appendix to "Second Voyage," p. xii.

‡ "Fauna Groenlandica," p. 20.

this piece of art from them." Captain Lyon noticed a fox prowling on a hill-side, and heard him for some hours afterwards in the neighbourhood imitating the cry of the brent-goose. In another part of his Journal he mentions that the bark is so modulated as to give an idea that it proceeds from a distance, though at the time the fox lies at your feet. It struck him that the creature was gifted "with this kind of ventriloquism in order to deceive its prey as to the distance it is from them." It sometimes catches the ptarmigan; and though it cannot swim, it manages occasionally to get hold of oceanic birds; in fact, nothing alive which it can master seems to come amiss, and failing to make a meal from something it has caught and killed, the Arctic fox is glad, like foxes in more favoured lands, to feed on carrion.

Martens, in his "Spitzbergen," says, that some of the ship's crew informed him, that the fox when he is hungry "lies down as if he was dead, until the birds fly to him to eat him, which by that trick he catches and eats." Our author believed it a fable, but it may nevertheless be one of the many expedients used by a species of a group whose name is proverbial for craftiness and cunning.

The flesh of the fox is occasionally eaten by the Esquimaux: Captain Lyon, in his "Private Journal," says that at first all of his party were horrified at the idea of eating foxes, "But very many soon got the better of their fastidiousness and found them good eating; not being myself very nice, I soon made the experiment, and found the flesh much resembling that of kid, and afterwards frequently had a supper of it."

Sir James Clarke Ross, during his five years' imprisonment in Boothia Felix and the adjoining seas, had ample means of judging of its flavour; he tells us that some of his party, who were the first to taste them, named them "lambs," from their resemblance in flavour to very young lamb. He

adds, that the flesh of the old fox is by no means so palatable. During that disastrous expedition the flesh of this fox formed one of the principal luxuries of their table, and it was always "reserved for holidays and great occasions. We ate them boiled, or, more frequently after being parboiled, *roasted*, in a pitch kettle."

When the Arctic Expedition in search of Franklin wintered in Leopold Harbour in 1848-49, the commander, Sir J. C. Ross, made use of the Arctic fox as a messenger. Having caught some of these animals in traps, a collar with information for the missing parties was put round the neck of each before liberation, as the fox is known to travel great distances in search of food. On Captain Austin's subsequent expedition in 1850-51 the same plan was carried out, but it was found to be equally without result. Commander Osborn thus facetiously describes the circumstance,* "Several animals thus intrusted with despatches or records were liberated by different ships ; but, as the truth must be told, I fear in many cases the next night saw the poor 'postman,' as Jack termed him, in another trap, out of which he would be taken, killed, the skin taken off and packed away to ornament at some future day the neck of some fair Dulcinea. As a 'sub,' I was admitted into this secret mystery, or, otherwise, I with others might have accounted for the disappearance of the collared foxes by believing them busy on their honourable mission. In order that the crime of killing 'the postmen' may be recognised in its true light, it is but fair that I should say, that the brutes, having partaken once of the good cheer on board or around the ships, seldom seemed satisfied with the mere empty honours of a copper collar, and returned to be caught over and over again. Strict laws were laid down for their safety, such as that no fox taken alive in a trap was to be killed : of course no fox

* "Stray Leaves from an Arctic Journal," p. 176.

was after this taken alive ; they were all unaccountably dead, unless it was some fortunate wight whose brush and coat were worthless ; in such case he lived either to drag about a quantity of information in a copper collar for the rest of his days, or else to die a slow death, as being intended for Lord Derby's menagerie. The departure of 'a postman' was a scene of no small merriment ; all hands, from the captain to the cook, were out to chase the fox, who, half frightened out of its wits, seemed to doubt which way to run, whilst loud shouts and roars of laughter, breaking the cold, frosty air, were heard from ship to ship, as the fox-hunters, swelled in numbers from all sides, and those that could not run mounted some neighbouring hummock of ice and gave a loud halloo, which said far more for robust health than for tuneful melody."

The Arctic fox as a captive has often amused our Arctic voyagers, and accounts of it are to be met with in most of their narratives. Captain Lyon made a pet of one he captured, and confined it on deck in a small kennel with a piece of chain. The little creature astonished the party very much by his extraordinary sagacity, for, on the very first day, having been repeatedly drawn out by his chain, he at length drew his chain in after him whenever he retreated to his hut, and took it in with his mouth so completely, that no one who valued his fingers would venture afterwards to take hold of the end attached to the staple.

Sir J. C. Ross in Boothia Felix observed a good deal of difference in the disposition of specimens, some being easily tamed, whilst others would remain savage and untractable even with the kindest treatment. He found the females much more vicious than the males. A dog-fox which his party captured, lived several months with them, and became so tame in a short time that he regularly attended the dinner-table like a dog, and was always allowed to go at

large about the cabin. When newly caught their rage is quite ungovernable, and yet when two are put together they very seldom quarrel. They soon get reconciled to confinement. Captain Lyon* notices that their first impulse on getting food is to hide it as soon as possible, and this, he observed, they did, even when hungry and by themselves; when there was snow on the ground they piled it over their stores and pressed it down forcibly with their nose. When no snow was to be obtained, he noticed his pet fox gather the chain into his mouth, and then carefully coil it so as to cover the meat. Having gone through this process and drawn away his chain after him on moving away, he has sometimes repeated his useless labours five or six times, until disgusted, apparently, at the inability of making the morsel a greater luxury by previous concealment, he has been forced to eat it. These creatures use snow as a substitute for water, and it is pleasing to see them break a large lump with their feet, and roll on the pieces with evident delight. When the snow lay lightly scattered on the decks, they did not lick it up as dogs do, but by pressing it repeatedly with their nose, collected a small lump which they drew into their mouth.

It may be added that the specific name *lagopus*, or "hare-foot," was given to this fox from the soles of its feet being densely covered with woolly hair, which gives them some resemblance to the feet of a hare. Cuvier remarks that other foxes acquire this hair on the soles when taken to northern lands.

The specimens, figured so admirably by Mr. Wolf, were drawn from some brought alive to the Zoological Gardens by one of the late Arctic expeditions.

A. W.

* "Private Journal," p. 105.

THE FABLES OF PILPAY.

THE Fables of the Brahmin, Bidpai, or Pilpay, as he is called by Europeans, are the most ancient apologues in the world. They were first translated from the Sanskrit in the reign of the great Kasra Núshírwán, of Persia (our Chosroes), the contemporary of Justin and Justinian. Gibbon gives the following account of the first Persian version of the Fables:—"In the search of universal knowledge, Nushirvan was informed that the moral and political fables of Pilpay, an ancient Brahmin, were preserved with jealous reverence among the treasures of the kings of India. The physician, Perozes, was secretly despatched to the banks of the Ganges, with instructions to procure, at any price, the communication of this valuable work. His dexterity obtained a transcript, his learned diligence accomplished the translation, and the Fables of Pilpay were read and admired in the assembly of Nushirvan and his nobles. The Indian original and the Persian copy have long since disappeared; but this venerable monument has been saved by the curiosity of the Arabian caliphs, revived in the modern Persic, the Turkish, the Syriac, the Hebrew, and the Greek idioms, and transfused through successive versions into the modern languages of Europe." Sir William Jones, in one of his discourses to the Royal Asiatic Society, says, that "they are extant under various names, in more than twenty languages." The Baron Silvestre de Sacy has since devoted much research to the literary history of the work, and has written a learned treatise on all the known translations, both Oriental and European. The most important version, and that through which the treasures of ancient Indian wisdom are best known among Western nations, is that of the Persian, Husain Vaiz, written about the year A.D. 1105,

at the command of Abul Ghazi, a descendant of the great Tamerlane. Husain Vaiz entirely remodelled the work, as known in his time under the title of the Book of Kalilah and Damnah. He took the old Sanskrit stories as his text, but he added much matter of his own, and illustrated the narrative and tales by quotations from the Koran, and verses from the Persian poets, to suit the taste of his contemporaries. Gibbon says, with some truth, that, "in their present form, the peculiar character, the manners and religion of the Hindoos, are completely obliterated;" but few will agree with him, except in so far as style is concerned, when he adds, that "the intrinsic merit of the Fables of Pilpay is far inferior to the concise elegance of Phædrus and the native graces of La Fontaine." The estimate of Sir William Jones, a better authority, is very different. In the preface to his Persian Grammar he says, "The most excellent book in the language is, in my opinion, the collection of tales and fables called 'Anvár-i Suhailí,' by Husain Vaiz, surnamed Kashifi, who took the celebrated work of Bidpay, or Pilpay, for his text, and has comprised all the wisdom of the Eastern nations in fourteen beautiful chapters." The meaning of the title, Anvar-i Suhaili is "the Lights of Canopus," the name of that star being flatteringly applied to the royal patron of Husain Vaiz. Of some portions of the Anvar-i Suhaili various versions have appeared, but a complete translation in English has lately, for the first time, been made by Professor Eastwick of Heyleybury College.* Candidates for East India interpreterships are required to read the Anvar-i Suhaili of Husain Vaiz after the Gulistan of Saadi. To furnish an aid for this study has been Professor Eastwick's chief aim in his translation,

* Anvar-i Suhaili, or the Lights of Canopus, being the Persian Version of the Fables of Pilpay. Translated from the Persian of Husain Vaiz, by Edward B. Eastwick, F.R.S. Stephen Austin, Hertford.

which is, therefore, as closely literal as possible. "Those characteristics of style," says Professor Eastwick, "which form the chiefest beauties of the work in the eye of Persian taste, will appear to the European reader as ridiculous blemishes. The undeviating equipoise of bi-propositional sentences, and oftentimes their length and intricacy; the hyperbole and sameness of metaphor, and the rudeness and unskilfulness of the plots of some of the stories, cannot but be wearisome and repulsive to the better and simpler judgment of the West. Kings always sit on thrones stable as the firmament, rub the stars with their heads, have all other kings to serve them, and are most just, wise, valiant, and beneficent. Ministers are invariably gifted with intellects which adorn the whole world, and are so sagacious that they can unravel all difficulties with a single thought. Mountains constantly vie with the sun in height, all gardens are the envy of Paradise, and every constellation in heaven is scared away in turn by some furious tiger or lion upon earth. These absurdities are so prominent that they would probably induce the generality of readers to close the book in disgust." The patient reader will, nevertheless, be rewarded with the discovery of many beautiful thoughts and brilliant fancies. We give three of the fables.

THE FLIES AND THE JAR OF HONEY.

A pious Dervish was one day passing along the Bázár. A poor man, a confectioner, who had a fellow-feeling for the indigent, asked the holy man to rest at his door. The Dervish, to gratify him, took his seat there; and the master of the shop, by way of imploring a blessing, filled a cup with honey and set it beside the stranger. The Flies, according to their custom of rushing upon sweet things, all at once settled in swarms on the cup of honey. Some alighted on the side of the cup, and a few threw themselves into it. The Confectioner, seeing that the attacks of the flies went beyond all bounds, flourished a fan to drive them away. Those that were at the side of the cup easily took wing, and went off; but the feet of those who had seated themselves within having stuck in the honey,

when they tried to fly, their wings became clogged, and they fell into the snare of destruction.

Then was the pious Dervish greatly amused, and he began to utter cries of delight. After his mind grew calm, and the waves of the ocean of his ecstasy had settled, the Confectioner said to him, "Oh, holy man! I have not withheld from thee material sweetmeats: do not, then, withhold from me that spiritual matter that was disclosed in thy recent transports." The Dervish replied, "In this cup of honey I saw the vile world, and the greedy and covetous competitors for it; and a secret and inspired voice said to me, 'Know that this cup is the world, and this honey its dainties, and these flies those that pursue them. And they that sit on the side are the contented who are satisfied with a small portion from the table of the world; and the others, which are inside the cup, are the greedy and covetous, who fancy that, as they are inside, they will get the greater share. However, when Isráil waves the fan of departure, those that are on the side easily fly away, and return to their nest in the assembly of the wise, while those that are seated inside, the more they struggle, get their feet the deeper entangled, and the issue of their affairs terminates in eternal misery and ruin.'"

THE MOUSE AND THE FROG.

A Mouse had taken up his abode at the foot of a tree which grew on the brink of a pool. A Frog had his residence close at hand, passing his time in the water, and sometimes coming to the margin of the pool to take the air. Meeting often, the two became acquainted, and from words of courtesy, there grew feelings of friendship. In short, being mutually pleased with each other, they became inseparable companions, and used to narrate to each other the whole story of their lives. One day the Mouse said to the Frog, "I am oftentimes desirous of disclosing to thee a secret, and recounting to thee a grief, which I have at heart, or imparting to thee a pleasure that I feel, but at that moment thou art abiding under the water. However much I call to thee, thou hearest not, owing to the noise of the water or the clamour of the other frogs. We must devise some artifice by which thou mayest know when I come to the brink of the water, and thou mayest be informed of my arrival without my shouting to thee." The Frog said, "Thou speakest truly. I, too, have often pondered uneasily, thinking, should my friend come to the brink of the water how shall I at the bottom learn his arrival? And how absolve myself of the anxiety which he will be enduring to gain sight of me? As it sometimes happens that I, too, come to the mouth of thy hole, and thou hast gone out from another side, and I have to wait long, I had

intended to have touched on this subject to thee ; but thou thyself, with the kindness thou possessest, hast set forth the circumstance, and with candour of heart hast made known the hidden feelings of my mind. Now the arrangement of this matter rests with thee." The Mouse replied, "I have got hold of the thread of a plan. It appears to me the best thing is to get hold of a long string, and to fasten one end to thy foot, and tie the other tight round my own, in order that when I come to the water's edge and shake the string thou mayest know what I want ; and if thou, too, art so kind as to come to the door of my cell, I may also get information of this by your jerking the string." Both parties agreed to this, and the knot of friendship was in this manner firmly secured, and they were also kept informed of one another's condition. One day the Mouse came to the water's edge to seek the Frog, in order to renew their friendly converse. At that moment, a Crow flew down from the air, and, snatching up the Mouse, soared up with him. The string which was tied to the leg of the Mouse drew forth the Frog from the bottom of the water, and as the other end was fastened to the Frog's leg, he was suspended head downwards in the air. The Crow flew on, holding the Mouse in his beak, and lower down the Frog hanging head downwards. People beholding that extraordinary sight were uttering in the road jokes and sarcasms. "A strange thing this, that, contrary to his nature, a crow has made prey of a frog ;" and "Never before was a frog the prey of a crow." The Frog was howling out in reply, "Now, too, a frog is not the prey of a crow ; but from the bad luck of associating with a mouse, I have been caught in this calamity ; and he who associates with those of a different species deserves a similar fate."

Beware of being led, through interchange of social courtesies, to become foot-bound in the snare of an unwise friendship. There are many whom it is proper to meet in the world with cheerfulness and urbanity, without forming with them an indissoluble companionship. Unsuitable alliances may bring unexpected troubles.

THE BLIND MAN AND THE SNAKE.

Once on a time a Blind Man, and one that saw, were travelling together. They halted at night at a place in a wild tract of country. In the dim grey of the morning they rose to pursue their journey. The Blind Man was searching for his whip, and it so chanced that a Snake lay there frozen by the cold. He took it up, imagining it was his whip. When he touched it with his hand, he found it somewhat softer and nicer than his own whip, at which he was pleased, though it must belong to some other traveller still asleep. He mounted his horse cheerfully, and forgot the whip that he had lost. When the day began to dawn, his companion who

could see, looked, and, behold, there was a Snake in the hand of the Blind Man! "Comrade," he shouted out, "what thou tookest for a whip is a poisonous snake. Fling it away before it makes a wound on thy hand." The Blind Man fancied his companion coveted the whip, and replied, "O friend! I left my whip, and chance has given me a better one. Thou, too, if fortune befriend thee, wilt find a nice whip. But I am not one of those who would allow my whip to be wheedled out of my hand by imaginary tales." He that could see laughed, and said, "O brother! my duty as thy companion demands that I should tell thee of thy danger. Listen to what I say, and throw down that Snake." The Blind Man frowned, and said, "Thou hast taken a longing for my whip, and thou pressest me beyond all bounds to throw it away, in the greedy hope that when I throw it down thou mayest pick it up. Do not indulge a vain idea, and give up coveting a gift that Providence has put into my hands." The more the man that could see urged his point, and confirmed it by solemn entreaties and oaths, the less heed did the Blind Man pay to him. So when the air became warm, and the Snake's body got rid of its chill, it twisted itself back and wounded the Blind Man in the hand, and killed him.

Evil men despise and resent the warnings of those who tell them to quit hold of worldly pleasure, which is gratifying to the sense, but deadly to the soul.

The foregoing apologues, though stripped somewhat of their literary ornaments, and separated from the surrounding narrative, will afford some idea of the shrewd sense and practical wisdom of the Fables of Pilpay.

A WEEK IN WURTEMBERG.

(*Concluded.*)

KORNTHAL:—THE CHRISTIAN COLONY.

KORNTHAL is a small village, numbering probably not more than from seven to eight hundred inhabitants; yet it is one of the most uniquely interesting places the traveller can find in any country. Its outward appearance possesses no attraction. There is too much uniformity in its streets and houses to be very picturesque; and yet there is something, not merely singularly neat and orderly, but attractive

too, in its little gable-roofed houses, each standing on its separate site and surrounded by its little plot of garden land, whilst everything both in the place and in its inhabitants is stamped with the appearance of industry, order, and prosperity. Six-and-thirty years ago, the spot now occupied by Kornthal was nothing but a manor, with a few buildings upon it and an ill-cultivated farm. Now it is well tilled, possesses good roads, and is the seat of a prosperous community. The origin and history of this settlement may, we think, prove not uninteresting.

The year 1816 was marked in Würtemberg by the immense number of those,—in many instances its best and even more wealthy inhabitants,—who left the country to seek a home in other lands. A chief cause of this expatriation was the introduction some years previously of the new Liturgy and the teaching of new doctrines—the *Neology* of that day—which extensively prevailed in church and school. A representation was made on the subject to the king by Hoffmann, then a public notary, in which he showed the cause of the evil, and pleaded for permission on behalf of such as felt aggrieved to form themselves into separate communities, in which they might be allowed full liberty of religious belief and of church ordinances: such a concession, Hoffmann assured the king, would have the effect of retaining all the inhabitants whose loss could be any detriment to the state. The matter remained, as might be expected, long in abeyance. Hundreds, and even thousands, who were preparing to emigrate, were induced to remain and await the result of Hoffmann's constantly renewed efforts. As time passed, many, wearied with delay, sold their goods and sought freedom in America or in Russia, where the Emperor Alexander permitted them to settle and enjoy the free exercise of their religion. Each such act was a new argument for Hoffmann's cause; and at last, the necessity

becoming each day more imminent, the concession came with many limitations and provisions from the government to form a settlement with the objects and under the conditions proposed. This was in October 1818; and in the first month of 1819, after encountering great difficulty in obtaining a site, the Christian men who associated themselves with Hoffmann succeeded in purchasing from its former possessor the manor of Kornthal for the sum of 113,700 florins. They did this in full assurance that the party they represented in the Church were not actuated by any mere idle and groundless dissatisfaction, but would exhibit the reality of their earnestness by coming forward, albeit at great sacrifice to themselves, and supporting them in this large undertaking. And so it proved. Wöhr, a "keeper of sheep," and Maisch, a "tiller of the ground," were for two months with their families the only inhabitants of the new settlement. They built; and as they built, inhabitants came to occupy. The hall of the old manor-house was soon too strait for the numbers who flocked to Kornthal on the Sunday to worship. The large barn belonging to the former farm-yard was next too small. Men were sick of a Liturgy forced upon them at the point of the sword, and rejoiced to escape from the teaching of the new gospel that was heard in the land by a return to the old paths. As summer advanced, the Sabbath saw them assembled under the blue sky. And beneath the same canopy of heaven, on the 9th of July, only three months after the first house was commenced, the whole of the already numerous community, and more than a thousand beside, were gathered together in the glad solemnity of laying the foundation-stone of their present "House of Prayer." The building was completed, through extraordinary effort, in four months. It will hold nearly two thousand hearers, but on the day of opening a concourse of eight thousand persons

necessitated the service of inauguration to take place outside the walls.

In the month of August the inhabitants of Kornthal received the royal privilege, their promised constitution, which, under thirty articles, secured to them the free exercise of their religion, and gave them a power of internal government; at the same time binding them to submission to the royal authority, and conformity to the civil laws in matters connected with the administration of justice and other public affairs.

We have not space to pursue the history of this interesting society, further than to say, that from the period of its first foundation it advanced rapidly. Schools were established,—high schools, ordinary schools, infant schools, and orphan schools,—which were sought by many from far and near, and which number at the present time at least three hundred scholars. Every member joining the community joins it as a religious body, and is required to submit to the rule and discipline of the church. The admission takes place by the vote of the community, by which also the choice of the pastor and superintendent, and all other appointments, are decided. Suspension from the ordinance of the Lord's Supper is the measure of discipline adopted in instances of improper conduct, if private monition be disregarded. Persistence in such a course is, or *is to be*, met by exclusion from the community, in other words, expulsion from the place; *is to be* met, we say, because during the thirty-six years of their history, the case demanding this ultimate act of discipline has not presented itself. A return is made to the magistracy of the district of all that comes under the cognisance of the civil administration; but hitherto they have had no cases of crime to report, and no legal processes, no bankruptcies, no street disturbances or family disputes, no differences of any kind, to refer to the judicial

authorities. Begging is regarded as a thing not to be tolerated amongst a Christian community, where all are bound to assist such as are disabled by age or sickness, and where none are excused from work who have the power. It has, therefore, no existence. The Church, we have already said, needed to be built almost before the dwelling-houses were erected; for the prison, on the contrary, there existed no such pressing necessity. Nineteen years passed before it seems to have occurred to the good people's minds that their village was incomplete in that which is generally regarded as a very necessary appendage. At length, rather by way of provision in case the necessity should arise than for any actual need, a small place of confinement was built, which has, we believe, been used in the case of one or two of the younger members, for whom the church discipline seemed to possess few terrors. There is a fund, managed by the superintendent, for the deposit of savings, for loans, and for the insurance of cattle and farming stock. Having no idleness, no crime, no police, or other similar expenses, and no luxuriant expenditure, it may well be conceived that the people have advanced rapidly in temporal prosperity. A large amount is expended in charity, and an immense outlay has been needed for their buildings and roads, but there has never been lack; and they have, in a physical as well as in a moral sense, literally converted a waste "wilderness into a fruitful field." The taxes are paid to the government, as in other places, but the whole amount is paid directly by the superintendent at the fixed periods, so that the government is spared the pains of collection. "Unto Cæsar," they say, "the things that are Cæsar's, as well as unto God the things that are God's."

The doctrines maintained by the community of Kornthal are, with one or two unimportant additions, precisely those of the Augsburg Confession, and the character of the teaching

is that which is indicated by the names of Arndt, Spener, Bogatzky, Osiander, Bengel, Storr, Rieger, and others of that band of holy men whose names are associated with the purest period of their country's religious teaching. Besides the three Sabbath services, a service is conducted in the church, or "house of prayer," as it is termed, every evening of the week. Family worship is observed in each house, and classes for instruction exist by which to train up the younger members of the households. A spirit of brotherly love is a marked characteristic of these people, who with all their strictness refuse fellowship to none who love the Lord Jesus, be they of what sect or name they may ; and a dweller amongst them has before him as complete a specimen of a living Bible Christianity as probably any place of like size can present. Kornthal has been blessed throughout its history with excellent men as pastors and superintendents. Hoffmann its founder,—who afterwards formed a second community on the same principles in the south of Würtemberg, called Wilhelmsdorf, which is a kind of colony from Kornthal and enjoys the same privileges,—was a noble-hearted man, and perpetuates his name and his excellencies in a son, who is at the present time one of the brightest ornaments of Germany—Professor Hoffmann of Berlin. Kapff, the prelate at Stuttgart, was for long its much-loved pastor. Staut, who fills that office now, is one of the most esteemed of the Würtemberg clergy.

We had thought to give some incidents of our short stay in Kornthal, but must forego. We were received at the inn rather as a friend than in any other manner, and were much attracted by the appearance it presented. The room we occupied was furnished with the Scriptures and religious books ; it contained a missionary cabinet of considerable size, consisting of curiosities received from mission-stations in foreign parts ; and it was hung from floor to ceiling on

all the four sides, with small pictures or coloured engravings representing subjects in Bible history, altogether two hundred in number. The pastor being absent at the time, the hostess asked the superintendent to spend an hour or two with us, together with two or three of the villagers, who were esteemed judges of wine. A double object was designed in this. And, as we sat together, we had the pleasure of gaining from our evening's intercourse much insight into the Christian life and past history of Kornthal, as well as of assisting to determine the cider which should be supplied to the inhabitants of Kornthal for the next year's consumption. All such matters are under the strict surveillance of the superintendent ; and, although we did not put the hostess to the test, we learned that had we asked for wine beyond a second glass within a certain limited period, the rules of the place would have forbidden its supply. This kind of Maine law is not peculiar to Kornthal. Throughout Würtemberg, according to a measure introduced in the Parliament in 1852 by the prelate Kapff, the liberty to enter a public-house is prohibited to all under the age of eighteen years,—an act which, although frequently evaded, it is said has been productive of very beneficial results in restraining the formation of habits of drinking and idleness.

We would gladly have stayed longer at Kornthal and enjoyed more of its pleasing society. We were invited to call on the widow of the late missionary Weitbrecht, who, like others similarly circumstanced, has found in the retirement of Kornthal a congenial place in which to spend her widowhood. But time pressed ; and the next evening after that on which we saw the moon rise so beautifully over Kornthal, we had passed the frontiers of Germany, and were finding out new objects of Christian interest and new sources of hallowed enjoyment in the half-French, half-German city of Strasburg.

T. H. G.

PROVERBS OF SOLOMON.

No. I.—A WOUNDED SPIRIT.

“The spirit of a man will sustain his infirmity : but a wounded spirit who can bear ?”—Chap. xviii. 14.

Good health is athletic. It rather courts than refuses toil ; and whether it be in climbing the mountain, or in the long pedestrian journey,—whether it be in the chase or the battle,—in rowing the skiff or waging war with the beasts of the forest,—the labour is itself an excitement, and there is a positive pleasure in the exercise of skill and agility and physical power.

There is a similar energy in a healthy soul. Where the understanding is vigorous and the conscience serene, and where the devout and benevolent affections are rightly developed, it is a pleasure to the man to exert his mind or his moral powers. He bends over the deep problem, or bestirs him to master the new science, or charges his memory with this and the other foreign tongue. Or if called to pursuits still nobler, he rejoices to carry out some scheme of arduous philanthropy ; and there seems no limit to his dispersive good offices, his friendly undertakings, his generous feats, his self-denying perseverance, and all his labours of love.

There is one athletic exhibition at which we have often wondered : it is the load which a strong man is able to sustain. There he goes, carrying almost unconscious a burden which would crush to the earth the unpractised strength of other people ; or here is a mighty load,—a heavy beam or a bulky bale, which you would not touch with one of your fingers ;—but he wriggles under it and gets it on his shoulder and marches off with it, like Samson with

the gates of Gaza. Or look into this armoury : it is as much as you can do to move that coat of mail ; and were you locked up inside of it, you would either stand as moveless as a statue, or would sink to the ground in irrecoverable prostration. But that panoply was the every-day wear of an ancient warrior. He got so used to it that he seldom felt the vizor on his brow, and, instead of standing stock-still in the encasing iron, he made the pavement quiver with his stalwart stride, and in case of need could snatch up and carry to the rear a wounded comrade.

Yet there is one feat more wonderful, and that is the load of care and responsibility which some strong spirits carry. Here is an influential citizen. It is not only his own business so widely ramified—with nerves and feelers that reticulate all round the world, and so sensitive that it trembles with each day's barometric pressure ; but it is the care of a hundred other interests : the clients who have imperilled their earthly all on his individual skill or fidelity ; the dependants who look up to him for protection, for subsistence, for promotion ; the projects of which his judgment is the pivot ; the structures of which his reputation or his resources are the pedestal. And here is a hard-working man. He loves his wife ; he loves his children ; and it is all that his brawny arm can do to hold at bay that strong man, Want, who wrestles daily at his cottage-door ; and he knows that were he laid low for a few short weeks, the pride of his little parlour would soon vanish piecemeal,—whilst an accident, or an early death, or a cureless malady, would reduce the whole to beggary : and amidst the gallant struggle markets glut, or provisions rise, or in the care of an orphan family or in the sickness of his own, some unlooked-for burden falls on shoulders already overlaiden : and as still he plies his daily task, it is not the tale of bricks with which he mounts the ladder, nor is it the sledge-hammer

which he plies so steadily, that proves him a sturdy man, but it is this load of responsibility which he bears so nobly, this burden of others' weal and woe with which he trudges along life's daily track without a murmur or a groan. The ancients fabled a giant who poised upon his back the world which we inhabit; but a grander feat than they ascribed to Atlas is performed by every humble citizen who carries without cumbering others the little world of his own household, and makes no outcry or complaint:—by every statesman like De Witt, or Gustavus, or Washington, who is the pillar that supports a land:—by every pure and public-minded Christian on whom, if not the apostolic care of all the churches, there cometh daily the care of objects which it were a sin to sacrifice, and of interests which it is hard to reconcile.

Yet, as we have said, such an energetic and elastic thing is "the spirit of a man," that if the heart is hale and the conscience calm, it will not only bear this burden without rebellion, but will rather hail the task which tries its mettle and draws forth its various powers. And not only so, but in addition to the load of daily duties a strong spirit will bear up beneath the pressure of a severe affliction; and few things are more touching in the annals of our Meshech, than the deeds that have been done by men who all the time were struggling with some terrible infirmity. Like the hero who, as the fight proceeds still keeps his post, yet every hour grows paler, and, when at last the victors are cheering to the final charge, he sinks dying to the earth and reveals the wound he had concealed all day,—much of this world's best work has been achieved by men who already felt the fatal shaft inside the corslet, and who in performing duty had first to conquer pain. And we view tenderly not only as treasures which in fetching from the deep the divers left their health or their lives behind them; but we prize as

trophies of man's immortal nature,—as triumphs of mind over matter,—those public services which have been rendered in the midst of private sorrow: those bursts of eloquence which have been uttered from off the rack of bodily anguish, and those sweet songs, which, like the strains of Philomel, have gushed from a pierced bosom: those researches which have been followed and those pinnacles which have been scaled by men who had strength to take them to the top, but not enough to bring them back to the valley: those fields which have been sown by husbandmen brave amidst bereavements, and who mingled tears with the precious seed they scattered:—those structures which have been raised by men who as the cement built their own life's blood into them, and those prescriptions for others which have been made by physicians who, after curing their patient, themselves went home to die. As such conquests of infirmity we revere the work that Brainerd and Martyn did for the heathen amidst disease and daily dying: the sermons which, like martyrs from the flaming pile, Macall and Robert Hall preached forth from the midst of agony: the appeals and awakening calls which Baxter indited with wan fingers and ghostly visage: the Progress which the blessed Pilgrim contrived to dream in a dreary prison. And believing as we do that much of yesterday's work was done by men who went forth to labour leaving some great anxiety in their dwelling, or fearing to meet it as soon as they returned:—knowing, as we do, that most of the valiant workers and worthiest benefactors of our day are men who carry in their flesh a constant thorn,—we cannot meet in our progress through the streets such Christian heroes without sometimes thinking, “There you go, another of the Invalid Invincibles! Out of weakness made strong, amidst all your philanthropic toils and tireless activity, men little think of your silent martyrdom. A few of your familiar

friends may know it,—that furrowed brow begins to betray it;—but who would surmise that it is from a sleepless night or a house of mourning that you have issued on this day's work? and amidst movements so vivacious and words so cheerful, who would imagine that you were carrying the cross of straitened circumstances, of torturing pain, of an incurable malady?" Yes, reader, many are the stout hearts, and, through Christ strengthening them, not a few are the weak ones, which sustain such infirmity: and, when we come to inquire, it is surprising how many of the travellers Zionward are limping like Jacob, or lame of both feet like Mephibosheth: how many, like Simon of Cyrene, are carrying a cross; or like Paul, are concealing a thorn in their flesh. But, alas! for the wound in the spirit!—the blasted affection, which leaves the man without a motive,—the bleeding conscience, which is draining away the man's spiritual strength, and his power of holy performance. Now that the arrow has entered the citadel of life the warrior sinks to the dust, and is held down by his own mail as by a mountain. And with this sword through his spirit the loftiest presence in the ranks of moral heroism will tremble like a leaf or wither like a worm, bereft of all his chivalry.

When the conscience is wounded, the prime necessity is to get it cured;—not calmed or comforted, but cured. Pain is a mercy, for it is a warning of danger.* It is an intimation of evil, and of evil which, if not obviated, may end in death. And just as bodily anguish moves you to take means for its removal,—as you don't take refuge from it in some cowardly soporific, but seek a cure in medicine; so mental anguish, the distress you feel after doing wrong, this pain is a mercy also. It tells you that you have done a damage to your soul, and that if you do not get a thorough cure your soul may die. And speaking as to wise men, we

* See "Excelsior," vol. iii. p. 300.

say,—Deal wisely with this wound. Don't try to forget it, don't try to heal it slightly, or to dull its anguish by deceitful opiates : for, like the foolish man, who, in escaping the physician, finds the grave, whilst flattering yourself that the danger is past because the pain is gone, it may turn out that the pain is gone because death is begun ;—necrosis, insensibility, has set in. It was thus that some of the most flagitious outcasts now living were brought to their present reprobacy. When first they did wrong their conscience pained them : but they took refuge in drink, or merry company, or in infidelity, or in fresh and more fearful sinning : till their conscience seared, and, past feeling, God gave them over to a reprobate mind, so that they now work all iniquity with greediness. But do you, with your wounded conscience, go to God. To that omnipotent Physician say, “Have mercy upon me, O God, according to Thy loving-kindness : according unto the multitude of Thy tender mercies, blot out my transgressions.” And whilst you pray for pardon, pray for purity : “Wash me thoroughly from mine iniquity, and cleanse me from my sin.” And in order to pray hopefully, fix your eye on one of those promises of mercy “which have been declared unto mankind in Christ Jesus our Lord.” “The blood of Jesus Christ cleanseth us from all sin.” “Him God hath set forth to be a Propitiation through faith in His blood,—to declare His righteousness for the remission of sins,—that He might be just, and the justifier of him who believeth in Jesus.” And just as you get hope in God's mercy, so will you get hatred of that sin which has offended Him and injured your soul :—till in the dawn of the peace unspeakable the gloomy shadows of conviction and coming judgment yield to the day-spring from on high, and amidst the sweet sorrows of repentance and the good news of remission, the bones that were broken begin to rejoice.

Reader, the Gospel does not undertake to transfigure

earth : it does not profess to change bleak climates into balm, or arduous occupations into graceful pastimes ; but it offers to transform, to transfigure you. By curing the hectic of the soul,—the death-stab in the conscience,—it offers to send you singing on the way to Immortality,—as well you may, although there be thorns in your path, nay, even thorns in your flesh, but no poisoned arrow in your spirit. Cured of that wound and at peace with God through Jesus Christ, to-morrow's task may be toilsome,—to-day's lot may be lonely,—life's horizon may be dusky grey or thunder-laden : but you are one of the Lord's ransomed ; you are returning to Zion ; everlasting joys are in store for you, and sorrow and sighing will soon be fled away.

Even so with regard to the wounded affection. When God gives an organ or an attribute, we may be very sure that He has provided the counterpart object and the appropriate element. Its fins tell us that that little fish was made to swim ; its wings tell us that this little bird was made to fly ; its finger-rootlets tell us that yonder ivy was made to clasp and climb ;—his yearning, admiring, adoring faculty tells us that Man was made to love and worship. You put the golden carp in a crystal vase ; you shut up the singing lark in a wooden cage ; you plant the ivy in a Wardian case ; and you bestow your whole heart, and soul, and strength, and mind, upon your dearest earthly friend. And each has a little of its element,—a little exercise for its peculiar faculty,—exercise enough to feel at last cabined, cribbed, confined. The fish has room enough to float, and the bird has space enough to flutter : the plant has room to grow and dispread itself a little, and the creature-worshipper has object sufficient to take him out of himself a little way, and break up his absolute selfishness. Yet this is not enough. It is only enough to awaken an instinct which it cannot gratify ; and till it gets its Creator's

counterpart, the craving for its proper good will keep the imprisoned creature restless and unquiet. The finny and the feathered captive, each alike wants something to complete the fulness of its joy:—the twining herb reaches the limit of its range, and curls up its tendrils or twists them back upon itself: and the creature-worshipper is haunted with fear of evil, or grows cross and weary with his idol. But in all this, it is man who is marring the work of God. Give each his proper scope, and you will at once make each of them happy. That golden fish God made for the sunny eastern river; that strong-winged bird He made for the blue and boundless firmament; that clasping, tenacious plant He made for the tall crag or the towering forest-tree: even as for that panting, aspiring, clinging soul of yours, He has provided a rest and a rejoicing in His own infinite excellence and uncreated all-sufficiency. Reader, take that range. Launching into the river of God's pleasure; mounting into the high noon of adoring assurance; clinging to the Rock of Ages, and enclasping the Tree of Life,—rise to the fulness of your immortal powers, and taste the blessedness which was man's in the beginning. And if this you learn to do, you need mourn no irreparable loss nor fear any cureless sorrow:—for in all events your heart's best treasure is secure, your truest Friend is deathless. There may be danger in the sunny creek, but you have a hiding-place and safety in the deep and ample river. There may be a serpent in the grass, or an inundation may drown the nest amidst the meadow flowers; but even while you alight on the sod you keep your eye on the firmament, and when the fields are flooded you can soar upward and sing at Heaven's gate. A dear companion may die, or a fond hope may prove a bitter disappointment; but "The Lord liveth, and blessed be my Rock." "My flesh and my heart faileth: but God is the strength (margin, THE ROCK) of my heart, and my portion for ever."

J. H.

REVIEW OF THE MONTH.

THE Universal Exposition was to open on the 1st of May; but it had to be postponed till the 15th, and even now it appears to be in the same "backward" state with the rest of the season.

But nature is stronger than emperors, and does not need to wait on artisans and contractors. On May-morning Mount Vesuvius opened a grand exhibition of his own, which has since been giving a nightly excitement to the people of Naples. The enormous outburst of lava has destroyed many plantations and vineyards; and with the lurid blue of the landscape, and with the cloud of fire-coloured smoke resting on the immediate scene of devastation, whilst the mountain quakes with its own artillery, the nocturnal spectacle must be one of the most awful conceivable. The correspondent of a London paper describes a plain of burning coke, some 200 feet wide, with lava under it, which he watched moving onward, "until, accumulating in large masses, over it thundered into the valley beneath. Down, down we watched the red line in the distance, burning and destroying everything it met with. A whole plantation of chestnut-trees yielded to its power: they twisted, and screeched, and groaned like martyrs in an *auto da fé*, and then gave signals, by a brilliant flame, that their sufferings were over. The noise of the advancing stream was as that of an Alpine torrent over a shingly bed—sh-sh-sh-sh: such was the continued murmur of the thousands of tons of burning coke which were ever moving on, and tumbling mass over mass."

To those who value the truest philosophy in union with enlightened and exalted piety, we would commend "Passing Thoughts," by Mr. Douglas of Cavers,—the first number of

which has yielded us rare enjoyment. "Goethe," "Rousseau," "Humboldt," "Italy," "Cousin and Eclecticism," "Grecian History," are the topics under which the accomplished author has given some of the ripe results of his extensive learning, his delicate observation, and his profound and original thinking. We hope the series will not be a short one: for it is seldom that a "heart" so "fixed" is united to a spirit so free, and seldom that even from the pen of a layman so charming a contribution has been made to the pages of Christian literature.

The Rev. J. Anderson's "Bible Light from Bible Lands," is an interesting volume of Scripture illustration, by one well acquainted with both the Word of God and the Holy Land. The second volume of "The Library of Biblical Literature," like its predecessor, contains a large amount of information in a pleasing and popular form. "A Pastor's Sketches," by Dr. Spencer of Brooklyn, are not the less valuable because many a minister, if only gifted with sufficient descriptive power might delineate similar scenes; whilst they supply hints and precedents invaluable to ministers whose experience is less extensive.

In a completed volume we have now before us the Lectures delivered to the Young Men's Christian Association in Exeter Hall during last winter. They will convey to future times a noble specimen of the eloquent instruction which was provided for the youth of the metropolis by some of the master-spirits of this age. We have here, not only the spirit-stirring effusions of Gough, and Guthrie, and Stowell; but the lovers of useful knowledge and original research will find abundant gratification in Archbishop Whately on "The Origin of Civilisation,"—in Mr. Burgess on Greek Christianity,—in Mr. Martin's amusing narrative of the "Opposition to Great Inventions," and in what is to us the gem of the series, Mr. Alford's Lecture on "The Intelligent Study of Holy Scripture."

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CORRIGENDA.

Page 20, line 5, for "chance" read "choice."

Page 342, line 11, for "soon" read "so on."

Page 380, first line of the foot-note, for "nerves" read "nares."

EXCELSIOR:

HELPS TO PROGRESS

IN

RELIGION, SCIENCE, AND LITERATURE.

“So rise up with a cheerful smile,
And, having strewn the violets, reap the corn,
And, having reaped and garnered, bring the plough
And draw new furrows 'neath the healthy morn,
And plant the great Hereafter in this Now.”

Casa Guidi Windows.

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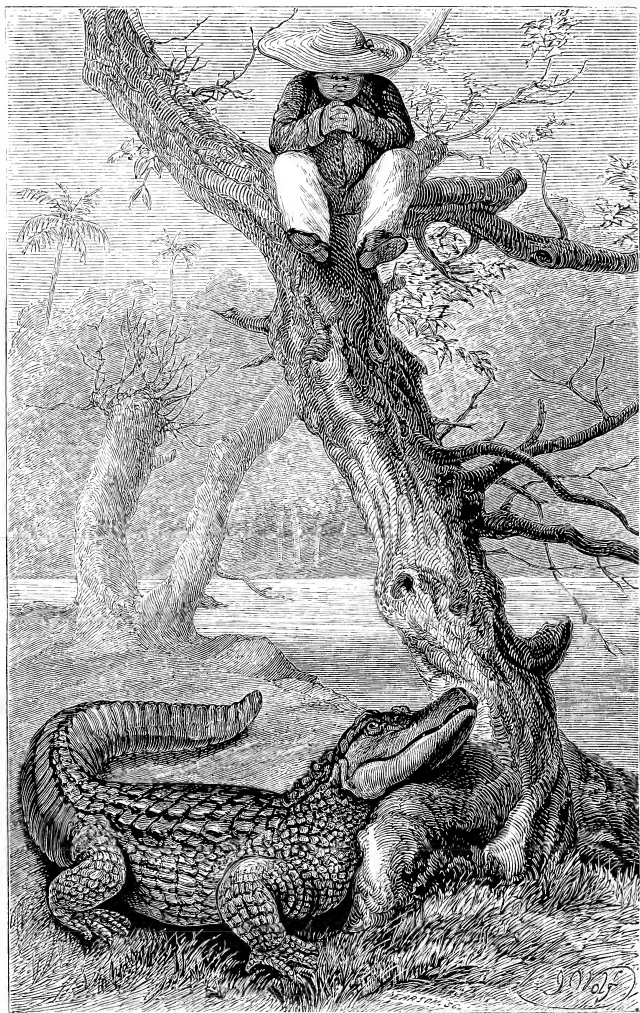
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The Padre's Adventure.

EXCELSIOR.

GEOLOGY.

GEOLOGY is a multifarious science. Properly, indeed, it is not one science so much as the application of many sciences to investigating the structure of the globe and the making out of the history of the processes by which that structure was elaborated. This multifarious nature of geology has its advantages and its disadvantages. One advantage is, that there is no cultivator of any branch of physical science but may apply his knowledge to a part of geology; the corresponding disadvantage is, that no one can properly or fully understand geology who is not acquainted with the general results at least, not of one, but of nearly all the physical sciences. Another advantage is, that no matter where a man's lot is cast, he has but to walk about and open his eyes, and he can study some part of geology; the corresponding disadvantage is, that fully to understand the structure even of his own neighbourhood he ought to travel and see other districts, both of similar and dissimilar structure.

We propose in this series of papers to take a few geological walks with the reader about our own country, and give him a hasty sketch of its structure. In so doing, we must suppose him to have a certain amount of preliminary knowledge. We must take it for granted that he knows a few of the common minerals, and a few of the common

rocks; that he knows what bivalve and univalve shells, what corals and echinodermata and crustacea are; what is meant by a mammalian animal, and so on. If he have not this ordinary knowledge, we would, with great humility, suggest to him, that the sooner he picks up some elementary work and acquires it the better.

We must then commence by telling him that the ordinary rocks which he sees used for building-stones, for paving the streets, &c., or those which he meets with in cliffs or quarries, or of which he sees the rolled and rounded fragments in gravel-pits, were all formed in one of two ways. They have either cooled from a molten condition, the result of intense heat, or they have been deposited and compacted together under water. They are called, therefore, Igneous rocks and Aqueous rocks. The latter are often called Sedimentary, as being the result of the deposition of sediment in water; and Stratified, because they have been strewed out so as to form wide sheets, or beds, or strata. The igneous rocks, on the other hand, are often called the Unstratified rocks.

Now all such rocks as granite (that, for instance, of which Waterloo Bridge is built), or syenite (of which the macadamised roads of London are chiefly made), or whinstone, or basalt (also often used for paving), or similar rocks called greenstone and felstone, together with all lavas, are igneous rocks. We shall not stop to prove this, except just to say that all these have a crystalline structure, that is, are composed of minerals confusedly crystallised together; they must therefore have been once in a state of fluidity; and as the minerals are not such as can be dissolved in water, the only alternative is, that they were made fluid by heat, or have been once melted. On the other hand, all kinds of chalk, limestone, marble, sandstone, puddingstone, gritstone, clay, shale, marl, and clay slate, are

composed entirely of mineral matter that was deposited as a sediment in water. The most obvious proof of this is, that they are often full of the remains of animals that lived in the water; most frequently of marine animals, but sometimes of the inhabitants of lakes and rivers, or even of the land,—the latter having been accidentally drowned, or washed into the water, and sunk to the bottom. In examining stratified rocks, therefore, we must always bear in mind that we are looking at old sea-bottoms, or the bottoms of lakes and estuaries; and we often find animals, such as shells, corals, and echinodermata, buried there, evidently in the position in which they lived. We often find, moreover, fragments of animals covered by the growth of others,—such as shells, the insides of which are covered by corals or serpulæ, showing that after the first animal died, the fragment of it remained loose at the sea-bottom long enough for the second to settle upon it, and grow for many seasons before it was covered up by the sediment which now forms the rock in which it is enclosed. From these and many other circumstances we arrive at the conviction that the sedimentary rocks were not all formed at once, or tumultuously, or even continuously, but little by little,—now a bed of sediment deposited here, then another there, and so on. We should not have pursued this course of observation long before the idea would dawn upon our minds of a great length of time being required for the deposition of these materials. We should get, moreover, the notion of succession,—that one bed was deposited upon another, with an interval between the two, and thus we should be led to think of the relative age of beds of rock, the lowest always being the oldest, and so on. The next thing, perhaps, that would strike us, would be the position of these beds of rock. We should perceive that they were not always horizontal, but inclined at various angles; sometimes very gently, some-

times more strongly, so as to approach, or even to attain, to verticality. But as they are composed of sediment that fell gradually to the bottom of the sea, forming there widely-spread sheets, we cannot conceive these beds being originally deposited in any other than a horizontal or nearly horizontal position. When, then, we see interstratified beds of sand, clay, and gravel, as in Alum Bay in the Isle of Wight, not horizontal but vertical, we are immediately convinced that these must have been tilted up and set on edge by some great force. Now it must have struck us at once, when we first found that rocks which now compose the dry land were originally deposited at the bottom of the sea, either that these had been raised by some force above the level of the sea, or that the level of the sea was much lower now than it was at the time these materials were deposited. We might, perhaps, have been most inclined at first to adopt the latter alternative, but when we came to beds that had evidently been raised at one end out of their original position, we should perhaps be more ready to accept the former, and suppose the whole mass to have been elevated by the same force that had so obviously raised part of it. All physical science, indeed, joins to assure us that the level of the sea is practically invariable; that except within certain very narrow limits, and for short periods of time, it has never changed, and that where any great and permanent alteration has taken place in the relative levels of land and sea, it is the land which has moved upwards or downwards, as the case may be, and not the sea. For abundant proofs of this vertical movement of the land during the periods of modern history, and even in our own day, the reader is referred to Sir C. Lyell's "Principles of Geology."

One result of this one-sided upheaval of the stratified rocks, and their consequent tilting into an inclined position, is very important, and that is, that beds which are very low

and deep-seated in the earth in one locality may gradually rise to the surface in another. The following diagram will render this obvious:—

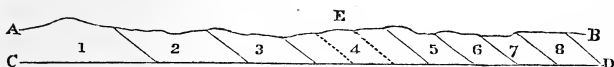


FIG. 1.

Suppose fig. 1 to be a rude representation of a section or vertical cutting across a country, 20, 30, or 100 miles in extent, from the undulating surface of the ground A B down to the sea-level C D, and 1, 2, 3, &c., to represent eight groups of beds of stratified rocks, the inclined lines being the boundaries of these groups, or their upper and under surfaces; it is obvious, that if we suppose these groups to be continued underneath the line C D, the group 1, which is at the surface at A, will be at a very great depth below it at the point B. If all the beds are continuous, it will there be buried under the whole thickness of the seven other groups. Let us suppose that in the group or set of beds numbered 4, there are certain valuable beds,—coal, for instance,—represented by the dotted lines. Towards the B end of the section they would be covered up by such a thickness of super-incumbent rocks that it would be impossible to sink down to them with any hope of profit; they might be reached where the group 5 comes to the surface; they might easily be got where they themselves “crop out,” as it is called, at E, while towards the A end of the section it would be absurd to search for them, since we should be already standing on beds which lie below them, and the deeper we sank the further we should be going away from them. Now this is a rough, compressed, and, of course, distorted representation of what actually occurs in nature; and we

have only to suppose London to be at the point B, and the point A to be in the heart of Wales,—say in Cardiganshire, for instance,—to see why it is impossible ever to get coals near London, or in Cardiganshire, while it is possible, and easy, to get them at some intermediate points in the Midland Counties.

Having got this elementary notion of the succession and position of the aqueous, or sedimentary, or stratified rocks, we will be content for the present with pointing out, in an equally rough way, the ordinary position and relations of the igneous or unstratified rocks. These are commonly found to have burst through, and intruded into the aqueous rocks in several ways.



FIG. 2.

They have either tilted them up and come through them, as in fig. 2, which granite often, but not invariably, does, sending, perhaps, wedge-shaped veins into their cracks or fissures, or cutting through them in dykes and veins; or they have flowed over them, as in fig. 3, or simply sent

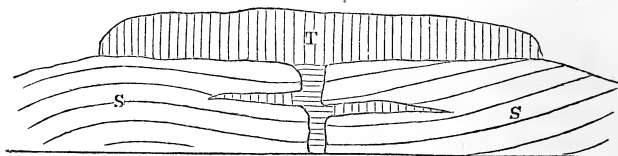


FIG. 3.

in dykes and veins among them, without reaching the

surface, as in fig. 4. In either case they commonly bake,

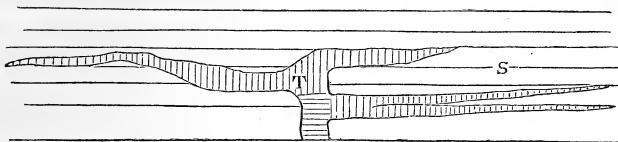


FIG. 4.

harden, and alter those portions of the aqueous rocks with which they come into immediate contact, burning coal into a substance resembling coke, hardening clays and sandstones, altering chalk into crystalline marble, and so on. Wherever these intrusive veins or this process of alteration takes place, it proves the igneous rock to be of subsequent origin to the aqueous ; but in some cases aqueous rocks rest undisturbed and unaltered upon igneous rocks, in which case the former may have been tranquilly deposited on the latter, after they had become cooled and consolidated. The mere fact of superposition, therefore, is no proof of the relative age of igneous rocks, as we have seen it to be in aqueous rocks, but that age has to be judged of by other circumstances.

Where the aqueous rock has been so greatly altered by the heat proceeding from the igneous rock as to have assumed a widely different structure from what it had originally, it is called a metamorphic, or transformed rock, and this process of metamorphosis has sometimes taken place over very wide regions, independently of the near presence of any igneous rock, apparently by the general action of heat proceeding from the interior of the globe. Among such metamorphic rocks those called gneiss and mica schist, chlorite schist, and quartzite or quartz rock, hold the most conspicuous place.

Now if the reader will suppose for a moment that the earth has existed as a habitable globe, very much in the same state that it is in now, with the single exception of the presence of the human race, for an utterly untold and inconceivable space of time, for millions and millions of years, with sea and land, mountain and plain, lake and river, rains, winds, and storms, both land and water being inhabited by animals and plants, he will then have made a supposition which the study of geology will prove to him to be a literal and simple truth. The species of plants and animals have been different from those which now exist, and different from those which lived after and before them—the places of the continents and islands, with their lakes, and rivers, and mountains, and their surrounding seas and oceans, have been changed, not once only, but many times ; but the globe has always had a diversified surface of land and sea, inhabited by various races of living beings, through a space of time so vast as to dwarf into a moment the duration of man. This truth is proved in this way :—

There is no part of the present land that is not made up of a vast thickness of matter deposited under the sea. What is now land, therefore, must once have been sea. But in examining these accumulations, we find among them proofs of portions of them having once formed surfaces of dry land, and of those surfaces having been buried again under great masses of material deposited under water. We see, therefore, that our present lands have been sea and land more than once in the earth's history. We get among the stratified rocks of our own islands matter that must have been formed in a great estuary, the delta of a mighty river, such as the Ganges or the Mississippi. There must, therefore, have been a vast continent to form the drainage for such a river, but this river matter is included in beds that are wholly the product of the sea ; and except this fossil delta,

we have scarcely any trace or record of such a continent, nor any indication of where it was situated.

Vast changes, therefore, have taken place, but we have not the smallest reason to suppose that any of these changes took place at a more rapid rate than those which are now going on around us; and although that rate is greater than many people would suppose, still, it is so slow as to be imperceptible during the life of one man, and only becomes sensible by comparing the present state of the few places where it is greatest with their state during early periods of history.

This truth is proved, secondly, by the numerous succession of races of animals and plants that have lived upon the globe. In the deepest, lowest, and therefore the earliest formed rocks, we get the remains of numerous animals and plants, all totally different from any that live now. In the next group of rocks above these, we get a similar assemblage of organic remains,—*similar*, but not the *same*. The species are partly different from those below, some of those below are not to be found, fresh forms make their appearance, while some are common to the two groups. In the next group above this, perhaps we no longer find *any* that were found in the lowest set of rocks, and some fresh ones come in that were not found in the second set; and thus the change and succession goes on through a very considerable number of phases, sometimes very gradual, sometimes more sudden and entire, according to the completeness of the preservation of our records, until, at length, species begin to make their appearance that are still living as our own contemporaries. These living species are very few at first among many utterly extinct, but increasing in number in the newer and upper rocks, till, in the newest of all, there are only one or two forms, perhaps, not now known to be living on the globe,

together with a multitude that live either in the neighbouring seas, or in some other, and, perhaps, distant localities.

We must warn our readers, however, not to expect too much in tracing this most interesting history of the past condition of our globe. The records, though amply sufficient to prove the main facts here stated, are in the highest degree broken and fragmentary. We get mere glimpses here and there of small portions of the past history of the earth, now a little evidence of its state in one locality, then another little group of data in another locality, but never can hope to arrive at anything like a correct notion, either of the general condition of the earth at any one period, or of the continuous history, through all geological time, of any one portion of the earth.

Even professed geologists are, perhaps, too little apt to take into account the vast intervals of time that elapsed, of which no records are anywhere preserved, and are too much inclined to look upon things as of absolutely contemporaneous origin, that were formed, perhaps, at different periods of an epoch of very long duration.

These, however, are questions which it is not now necessary to discuss. All that it is necessary to insist upon here is the absolute necessity, for any one wishing to study geology, to dismiss from his mind all preconceived notions and ideas as to the lapse of past time in the history of the earth, and to hold himself ready to accept the evidence of duration with the same willingness, and to the same extent, as the student of astronomy must receive the evidence of the almost infinite extension of the space occupied by the heavenly bodies.

So much for introductory matter. In our future chapters we will at once commence our exploratory walks over Britain, and learn as we proceed.

J. B. J.

SCENES IN HISPANIOLA.

III. THE PADRE'S ADVENTURE.

THE sun was setting in a bank of purple clouds, edged with flaming gold, at the head of the valley, when the party returned to the priest's house. But no Padre was there to welcome his guests; and the mulatto girl, who acted as housekeeper, and had been fretting on account of the long-spoiled dinner, at once found her distress turned into another channel when the strangers returned without her master.

"*Ay de mi, Señor!* what can have become of his reverence? It must be some great misfortune that keeps him away from his dinner;—perhaps he is drowned in the river! *Oh! Maria santissima!*"

There was, indeed, reason for alarm; for, as Gomez well knew, there were no houses in the direction in which the priest had gone, where he could be detained either on pleasure or business, even if he had forgotten his own appetite and that of his expected guests. The planter resolved immediately to return in search of him, and his young friend insisted on accompanying him.

Night had fallen upon the savanna, but as the moon was near the full, a soft and brilliant light was shed upon all objects,—a light, however, which cast the forest-margin into deeper obscurity, and marked the situation of every tree by its black shadow. The sweet and full melody of the Ruisenior was ascending to heaven from nearly every thicket, like an evening hymn sung in choral response to the songs of the fiery watchers above,—the music of the spheres, inau-

dible, alas ! to our dull sense. But the two riders had little eye and ear for nature now ; anxiety for their friend occupying their minds. Repeated shouts were sent forth, especially by the Creole, who gave forth a volume of piercing voice, acquired by long practice in the great solitudes of this thinly peopled region.

Suddenly he drew tight his horse's rein, and with a quick gesture to his companion, raised his hollow hand behind his ear and remained motionless. For more than a minute he continued intently listening ; then a long shrill cry was heard in the remote distance. The Señor answered it with another lengthened shout, and putting spurs to their beasts both the cavaliers hastened towards the sound.

Again it came louder and nearer, accompanied by the bark of a dog, which ended in a melancholy howl ; and soon the voice of the Padre could be recognised directing his friends to his retreat. He was perched among the branches of a guazuma tree, not far from the margin of the river,—half dead with the combined influence of fright, and hunger, and cold ; and so stiff, from the cramping of his limbs, as to be unable to descend without help. Yet his habitual facetiousness returned with the presence of his deliverers.

“ *Eteme aqui!* Here I am ! What do you think of my new roost, Señores ? Don't I look ‘as wise as an owl in an ivy-bush?’ When I aspired to be like my scarlet-headed bird, I little thought so soon to copy his habits of tree-perching.”

“But what are you doing there, Padre ? And why did you not get down ?”

“I am here because Sathan drove me here ; and as to getting down, I dared not, for till you came I did not know but he was still watching me ; and, besides, I could not, for this cold *norte* has frozen all the sap out of my poor limbs, and I am as stiff as a soldier's ramrod. But help me

down, good friends. You will find my mule fastened to a twig of yonder saman. *Oh! Geronimo santissimo!*"

"Here is something to warm you, father!" said Señor Gomez, putting a small flask of *aguardiente* to his mouth. "Taste; and you shall tell us all about it as we ride home."

"*Muchisimos gracias!*" said the shivering Padre, taking a hearty pull at the flask. "Ha! that warms the cockles of my heart. And now, gentle Señores, you shall hear how I came to be perched among the birds. May you never be as near to a horrible death as I have been this day! *Dios guarda usted!*"

"When I parted from you this morning, I made straight down for those white garzas that I saw among the reeds. I got down among the thickets, and put a stout inga bush between me and the birds, till I was pretty near them. 'Ho,' said I in the words of the proverb, 'It's good fish if it were but caught;' and my mouth watered, as I peeped round the corner of the thicket and saw them stalking about so stately, like queens in their robes of white. *Poco a poco!* Ah! Señores, they were a trifle,—just a yard or two,—beyond range. If I showed myself, I knew they would be off in a twinkling, but there was a nearer bush which I could not reach except by crossing a creek of the river. It was not wide, and perhaps I might have leaped it, but I am not so young as formerly, and this *barriguilla* of mine is heavy. Besides, you know the saying, 'Better go round than drown;' so round I crept, gun in hand on full cock."

"And your gun went off, and frightened your birds?"

"You have hit it, Señor. There was one of those cursed cockspur briers (the Saints forgive me!) that are always sprawling about these river-side bushes; it caught my trigger—pop! and off go the birds, leaving me gaping after them as they floated away—away, over the morass, like snow-flakes in old Biscay."

"Pleasant, that, certainly!" said Don Carlos; "but if I may presume to quote a proverb to your reverence, who is so stored with the wisdom of the ancients, 'There is as good fish in the sea as ever were caught.' Doubtless, in these prolific plains you soon met with other game."

"Your excellency is right. When I had again mounted my mule, who is as good a creature to stand with the rein on her neck as I ever saw, I strolled a little way down the river, till I came opposite the Singing Rock."

"A singing rock! What is that?"

"Perhaps Señor Gomez can tell you better than I; all I know is that it is a rock that sings."

"It is the face of a lofty precipitous rock of limestone that overhangs the plain," said the planter, "which at certain times, and with the wind in a certain quarter, gives out musical sounds. There is a mountain-path leading up to it, which I can show you. I have often listened to the music. My father used to say that the sounds were produced by the wind struggling through the narrow fissures and crannies with which the rock is split and perforated through and through; but the superstitious repeat old Indian legends about their being the voices of their dead ancestors. Proceed with your story, Padre."

"Just there, I knew there was a promising piece of morass, with a good deal of cover; and as I peeped round a bush, *O cielos!* there were at least forty flamingoes within range. I fired; and what a show of scarlet wings was in the air! But one was left splashing and floundering in the morass, and my faithful Feo there plunged in to fetch her. In a moment I heard a dreadful howl, and my poor dog was scampering from the rushes as fast as legs could carry him, with an enormous caiman, or what Don Carlos would call a cocodrillo, jumping after him. The cur was out of sight in a few minutes, yelping away to the woods, and the monstrous

diablo, giving up the pursuit of Feo, turned upon me. Oh, what a leviathan it was! full a dozen ells long (at least he seemed so to me!), with such a double row of grinning teeth! He stood high up on tiptoe, with his back arched like a frightened cat, and came bounding after me with great leaps. I cried to *Nuestra Señora purissima*, and to *San Geronimo*, and I know not how many saints beside; for 'Every little help is good in peril;' and just reached the guazuma where you found me, in time to catch hold of a branch and swing myself up. Indeed, the hellish monster was so close at my heels, that I hardly yet know whether his fangs did not seize the extremity of my *chaqueta*. Is it not torn behind?"

"It is a little ragged, indeed," said Gomez, archly; "but I think the caiman was hardly guilty of that, because I noticed it this morning."

"Well, I was glad enough to be safe in the tree, for I was never so frightened in my life, except when the spiteful old prior shut me up for a night in the bone-house of San Geronimo, for some trifling peccadilloes. The monster, however, did not go back to the river, but crouched beneath the tree, watching me with his green eyes, that made me tremble to behold them, and make me shudder now when I remember them. At first I hoped he would give it up and retire; for I remembered the proverb, 'One-sided courtesy does not last long,' but there he remained hour after hour through the long day, and even until it grew so dark that I could see him no longer.

"I had plenty of time to think, and I could not help remembering that I had deferred my war with the arch enemy this morning, which doubtless gave him boldness to beset me in this shape. I would have exorcised him then and there, but I had not my Breviary with me, and I could not recollect a word of the service.

"To add to my fear, after dark I heard several more of

the horrid beasts prowling round in the thickets, snorting and yelping like so many puppies, and splashing in the water of the morass. Hunger and cold came, too. If I had been so lucky as to have mounted a maimon or a guanabana, I might have satisfied myself with the fruit, but the hard glutinous berries of that guazuma were but a sorry affair to fill a hungry belly. And when the *norte* came down at sunset, blowing chill from the Serico mountains in hollow gusts, it seemed to pierce me through and through, for this thin chaqueta of mine is ill fitted for the keen night wind. I shall have a pretty fit of the rheumatism to-morrow, *cierto*, for I have caught a desperate cold."

"May I venture to add one to your stock of proverbs?" said the young Spaniard. "'The hunter prepares his weapons, but he knows not what he will catch.' But your troubles are at an end, Padre, for here is your house. As to us, it is too late to accept your hospitality to-night: we shall not be home by midnight as it is. *Buenos noches!*"

"*Adios! adios! hasta mas ver.*"

Φ

THE EASY YOKE.

"TAKE my yoke upon you, for my yoke is easy and my burden is light." Truth, Lord! a light burden, indeed, which supports him who bears it. I have looked abroad through nature to see if I could find anything that could bear some analogy to this; but I cannot find it, unless it be the wings of a bird, which, while borne of the creature, bear him aloft. In truth, to bear the Lord's burden is to be permitted to cast it, together with ourselves, into the arms of Omnipotence and Grace.

Bernard of Clairvaux.

HEAT: ITS RELATIONS TO MATTER.

FOR Heat, as for Light, we are dependent upon some peculiar influence, or set of influences, generated upon the surface of the sun. It is a law on the physical earth that every manifestation of force, whatever may be its kind, requires a change in the form of matter equivalent to its degree. To express a metaphysical idea by a simple example:—A pound of coal in burning produces a certain quantity of Heat, which converts a definite measure of water into steam, and that steam is capable, when properly applied, of producing an exact amount of mechanical effect. There is nothing approaching to uncertainty in this; the quantity of carbon which has combined with oxygen determines the development of an exact equivalent of Heat, and that agent equally determines the mechanical power. We have every reason for believing, as Sir Isaac Newton taught, and as the philosophers of the undulatory school are now teaching, that the Heat which is so essential in maintaining vital power upon the surface of this earth, is produced by an equivalent amount of change in the matter constituting the sun, “of this great world both eye and soul.”

The sunbeam presents to us three peculiar sets of phenomena:—LIGHT, on which vision depends, and which gives colour to the surfaces of matter; CHEMICAL POWER, as strikingly manifested in all photographic effects; and HEAT, the relations of which to matter we are about to consider.

In passing through planetary space the sunbeam loses scarcely any of its Heat, and even the attenuated air of “the

iced mountain-top" can rob it of but little. The solar rays reach the solid surface of our globe amply charged with those agencies which are necessary to maintain the physical earth in those conditions which are requisite for the support of organisation and life.

That which has been called the "*activity of matter*," is directly dependent on Heat. When a body is not absorbing, it is radiating Heat, or becoming colder. During daylight the earth is receiving Heat from the sun, and it gradually becomes warmer. During the night the same surface is radiating Heat back into space, and, consequently, becoming colder. When any substance is warmed, it expands, its particles move away from each other; when it cools it contracts: thus a constant motion is produced amongst the particles of matter in obedience to this law. This movement may be rendered sensible to us. If a bar of metal, which has been heated, is placed to cool with one end resting upon a wedge of lead or glass, *musical notes* are produced by the vibrations established. The fable of the Memnonian lyre becomes, in this experiment, a philosophical fact. The power of matter to absorb Heat depends on its physical state. Air absorbs exceedingly little, water a little more, but solid masses the most.

The knowledge of these facts enables us to explain some of the phenomena of the seasons. At the period of the vernal equinox we have equal day and night, as regards time;—therefore, the daily absorption and nocturnal radiation are the same, the rate of absorption and radiation being equal in all bodies. But in the spring, the southern hemisphere is opposite the sun; and as that is peculiarly the aqueous region of the earth's surface, the absorption of Heat is at its minimum. Advancing onward to summer, the northern hemisphere gradually presents itself to the sun; and at the time of the summer solstice the earth is

absorbing Heat, under favourable conditions, for sixteen hours, and radiating for eight only, such being the length of the day and night. At the autumnal equinox the duration of light and darkness is again equal; but the position of the northern hemisphere, directly facing the sun, ensures a larger absorption of Heat. The day declines gradually; long nights and short days mark the approach to the winter solstice, when the southern hemisphere is opposite the sun, and the loss of Heat for sixteen hours is only met by absorption for eight under the worst circumstances.

“Mysterious round! what skill, what force divine,
Deep felt, in these appear! a simple train,
Yet so delightful mix’d, with such kind art,
Such beauty and beneficence combined;
Shade, unperceived, so softening into shade;
And all so forming an harmonious whole,
That as they still succeed, they ravish still.”

Other provisions, equally striking and beautiful, regulate the rates of Heat-absorption. Not only are these rates determined by the condition of the surface as to roughness or polish, but in a very remarkable manner by *colour*. Surfaces having dark colours become hot under the same circumstances much sooner than do those which are of a light colour. A thermometer buried amidst the petals of a dark dahlia will indicate a much higher temperature than one which has been closed in the chalice of a white lily; and when the dews of evening are condensing, we shall find more moisture on the dark than on the lightly-coloured leaves.

The temperature of our planet is dependent upon the peculiar conditions of its surface. If it had pleased the Almighty Creator of worlds to have given other conditions, as it regards the colour and the physical constitution of the

surface of our planet, although the earth still maintained its distance from the sun without change, it might have endured the extremity of Heat, or suffered from the severity of cold. The temperature of a planet is not so dependent upon its distance from the radiating star around which it revolves, as on the peculiar surface conditions to which we have referred. Without entering at all on the every way unprofitable discussion, relative to the "Plurality of Worlds," we desire only to show that the remotest planets may be constituted to enjoy conditions of Heat and Light in no respect less genial or less conducive to vitality than those which aid in clothing our world with a beautiful vegetation, and crowding it with every condition of animal life.

Heat, as an antagonistic power to cohesive attraction, regulates the liquid, solid, or gaseous conditions of matter. Ice, water, and steam, represent these three states, and may serve in exemplifying some of the phenomena. Ice—solid water—can only exist at a certain temperature; 32° on the scale of Fahrenheit being the turning-point; below that water congeals, above that ice becomes water. Whenever two bodies, one colder than the other, are brought together, the warmer one parts with its Heat until the temperature of each becomes equal. Thus a lump of ice placed on a warm plate robs the plate of its Heat, and that Heat is employed in converting a certain quantity of ice into water. If we place ice in a capsule above a burning lamp, it melts; but notwithstanding the formation of water, a thermometer will continue to indicate the temperature of 32° as long as a particle of ice remains undissolved. All the Heat produced by combustion has been expended, or is rendered latent in forming water. The ice having disappeared the temperature increases, until the water reaches that point which we call boiling, indicated by 212° on the same thermometric

scale; from this point no increase is manifest, all the additional Heat being employed to form steam. Water, therefore, is ice + Heat, and steam is water + Heat.

There are some physical conditions of a singular character connected with the different states of solid and fluid water which claim attention. When we take ice from the surface of still water we find it full of air-bubbles. If we examine the icicles formed on the pendent branches of trees and shrubs which dip into rapidly running water, we shall find them perfectly transparent and free of air. This fact has led to the discovery of a most remarkable condition. Water, as it passes from the fluid to the solid state, rejects everything. Air, salts, spirits, acids, or alkalies, poisonous compounds, or coloured tinctures mixed with water, are all separated from it as it becomes solid. The only condition necessary being gentle agitation to prevent these substances from becoming mechanically entangled. This being observed, the ice which is formed is absolutely pure solid water, everything having been squeezed out of it. In passing again from ice into water, air is eagerly absorbed, and nothing peculiar is observable. If, however, we place above the ice a drop or two of oil, and thus prevent the absorption of air, we obtain water, but *water which will not boil at the ordinary boiling temperature*. The liquid thus obtained may be heated, without ebullition, to above 260° F., when it explodes with more violence than gunpowder. We are here taught that an apparently simple alteration in the condition of the necessary pabulum and useful agent, water, which we now employ for domestic and manufacturing purposes with benefit and safety, would convert it into an element of destruction to man; that alteration in condition being determined by some mysterious function of that agent, which is the subject of our consideration.

We have hitherto been so constantly in the habit of

regarding Heat as a power capable of resolving all bodies into their simplest parts, of considering it as an agent of destruction, that the mind is scarcely prepared for the statement that Heat of such intensity may be produced *that it will not burn*. Such is, nevertheless, one of the most striking discoveries of modern science, the steps of which we must now examine.

If water is thrown upon a very hot metal plate it gathers itself into a spheroidal form, and rolls about, evaporating very slowly. This condition has been called the *spheroidal state*. It applies to all bodies susceptible of assuming fluidity, and during the continuance of this peculiarity its physical laws are altered.

If two capsules, one of them being *red-hot* and the other cold, be placed over a brisk fire, and equal measures of water be poured into each, it will be discovered that the water in the red-hot vessel never boils ; whereas that in the cold vessel soon boils, and rapidly evaporates. The liquid in the red-hot vessel assumes the spheroidal state ; and it never acquires the temperature of boiling water.

If a white-hot ball of metal is plunged into water, that fluid is seen to keep at some distance from the glowing metal. A space filled with watery vapour surrounds the ball. As it cools the water collapses around it, and at last, touching it, boiling begins. A metal sieve, being made white-hot, and held still in the flame of a lamp sufficiently powerful to maintain the Heat, *may be filled with water*. Not a drop will flow through the meshes of the sieve until the temperature falls to dull redness, when the water will suddenly rush through.

The vapour escaping from spheroidal water has a temperature equal to that of the heated surface by which it is generated, but different from ordinary steam. It has no elasticity, and may be confined in a red-hot vessel without

exerting any pressure. If the containing vessel is allowed to cool, the watery vapour then exerts a pressure due to the Heat it contained; and consequently, from the sudden development of so large an amount of mechanical force, a violent explosion ensues.

At high temperatures all the laws of chemical affinity are suspended. If any two bodies—such as an acid and an alkali—having the most powerful affinity are projected into a white-hot vessel, they assume the spheroidal state, and roll about each other, but refuse to combine.

The result of investigations of this class has been to show that organic substances will not burn at *very high* temperatures. When fluid metals are in a state of intense incandescence the naked hand or arm may be plunged into the fiery bath without injury. The tricks of the conjuror become the realities of the philosopher. White-hot metals may be handled; and we learn from the experiments of M. Boutigny, and of Professor Plucker of Bohn, that the sensation produced on the skin by a bath of white-hot iron is that of agreeable warmth, and nothing more. Do we not learn from this that Heat passes into a new state when the excitement producing it increases beyond a certain degree? We almost appear to be realising the beautiful thought of Sir Thomas Brown, when we see organic matter refusing to burn, when living organisms seem

“To grow immortal in the arms of fire.”

This remarkable agent, which produces so many curious effects in its relations to matter on this earth, originates in the sun. There are many reasons for believing that some intimate relations exist between the dark spots which appear on the solar disc and terrestrial Heat. It is known that these spots move according to some fixed law, and that their numbers vary regularly in cycles of ten years. The great-

est number of spots visible on the sun in one year is three hundred. They gradually decline and fall to their minimum, or ninety, in five years ; they then again increase, and in another five years return to their maximum. Sir William Herschel conceived that he detected some connexion between these spots and an abundant harvest ; and in one of his Memoirs, published in the "Philosophical Transactions" for 1801, will be found much curious speculation on this subject, the prices of corn in the English markets being thought to vary with the spots upon our solar centre. The researches of modern science have brought the probability of this much nearer, and beyond this proved that the variations of terrestrial magnetism obey the variations in the numbers of these remarkable dark spots.

In the solar beam we now discover the existence of three agencies—Light, Chemical power, and Heat—which, mysteriously bound together, produce upon the surface of our earth all the phenomena of organisation. Well may we, after an attentive consideration of these facts, adopt the beautiful language of Herbert, and say,—

“ Then with our trinity of Light,
Motion, and Heat, let 's take our flight
Unto the place where thou .
Before didst bow.

“ Get me a standing there and place,
Among the beams which crown the face
Of Him who died to part
Sin and my heart.”

R. H.

LIFE, IN ITS INTERMEDIATE FORMS.

No. III.

ARACHNIDA.

(*Spiders, Scorpions, and Mites.*)

THE common consent of mankind regards most of those creatures of which we are about to speak with revulsion and abhorrence; and it must be confessed that the closer examination which the scientific naturalist bestows on them has only resulted in more firmly fixing upon them the stigma of a bad character,—decidedly, undeniably *bad*. The poet's verdict is true, when he calls the Spider—

“Cunning and fierce,—mixture abhorr'd.”

Bloodthirsty and vindictive, treacherous and cruel even to their own kind, bold and prompt in warfare, ever vigilant, full of stratagem and artifice, highly venomous, lurking in darkness, endowed with curious instincts, and furnished with many accessory means for the capture and destruction of other animals,—the Spiders and Scorpions do not move our esteem, it must be confessed; and an entomologist of the highest eminence,* carrying out the notion that the seen things of nature are symbols and pictures of the unseen and spiritual, views in these creatures the types of the evil spirits; a supposition not unwarranted by the expression of our Blessed Lord, “Behold, I give unto you power to tread on serpents and *scorpions*, and over all *the power of the enemy!*”† Yet even these repulsive animals are the handiwork of Infinite Wisdom; and half-an-hour may be worse

* Kirby, Bridgewater Treatise.

† Luke, x. 19.

spent than in briefly running over some of the peculiarities of their structure and habits.

And, first, a few words on their structure. They may at once be distinguished from true Insects by having four pairs of legs instead of three. They exhibit a greater condensation of outward form, there being generally but one division, that which separates the *abdomen* from the fore part, which latter, because it includes in one the parts answering to the head and chest of insects, is commonly called the *cephalothorax*. The head is destitute of *antennæ*, but those are replaced by a pair of claws terminating either in a single hook, or in pincers. The eyes are always simple lenses, sometimes moderately numerous, and then usually arranged in groups, and occasionally placed at the summit of a sort of pillar on the back, a provision which must greatly assist circumspection.

Internally, also, the organisation is more condensed, and of a higher type than in Insects. The nervous knots or ganglia are few and central, sending out radiating threads to the circumference and extremities. The breathing organs are either lungs, inclosed in bags, or radiating air-tubes (*tracheæ*), which communicate with the atmosphere by minute slits in the skin. The Spiders and Scorpions belong to the former category, and are named *Pulmonaria*; the Harvestmen and Mites to the latter, and are called *Trachearia*.

We naturally associate Spiders with cobwebs, and the faculty of spinning threads from the hind part of the body is one of their most marked characteristics; but all do not make *webs*, properly so called. In the south of Europe and in the West Indies, certain large Spiders belonging to the genus *Cteniza* are called Trap-door Spiders, from their singular architectural instincts. The female excavates a burrow in soft earth, an inch in diameter, and six to ten inches in depth; this is lined with a dense tapestry resembling paper,

formed of her silk ; and the mouth is closed with a circular door, formed of many layers of silk, with pellets of earth interwoven into the exterior, but which is so smooth on the interior, and so accurately formed, as to fit the orifice with the utmost accuracy, while a hinge of silk at one part of the circumference allows the lid to be raised for the exit of the owner, when it closes by its own elasticity.

Judging from specimens which we have examined in Jamaica, the lid is always punctured with a number of holes, such as might be made by a very fine needle, which penetrate through the whole substance, the light being clearly seen through each hole. We have conjectured that the object of these orifices may be the admission of air and light into the cell, when the lid is tightly closed, for the comfort of the inmate. The Spider habitually resides in her well-built house, coming abroad to hunt, and retreating with her prey to the bottom of her domain.

In the hot parts of the world, Spiders (*Mygale*) closely allied to these are found, which are often of immense size, very hairy, and usually black, grey, or reddish-brown in colour. These monsters prey even upon small birds ; a statement which has been denied upon insufficient grounds, but which rests on the concurrent testimony of such men as Perty, Stedman, Moreau de Jonnès, and Palisot de Beauvois. They do not, however, spin nets, but steal upon their prey, and overcome it by violence.

The Spider which is so common in our houses, filling the angles of rooms, the crevices of old walls, and the interstices of the foliage in shrubs and hedges, with a dense web, belongs to the sedentary division. It is the *Tegenaria domestica* of zoologists. The web is nearly horizontal, with a tube at the inner part, within which the Spider is ordinarily lodged, motionless, with its head projecting and its fore feet stretched out upon the expanse of the web,—

“ And hush'd in grim repose, expects its insect prey.”

No sooner does a thoughtless fly alight on the web, than out rushes the Spider with lightning rapidity, seizes it with her fangs, and carries it into the den to be sucked and exhausted of its juices. Walckenaer thus describes her domestic economy: "She constructs a bag of silk shaped like a purse, ballasted with bits of plaster, for the suspension of her cocoon. The orifice of the bag she covers with a little web, on which she sits, watching without ceasing for the appearance of her offspring. Her cocoon, formed of fine web, contains about 150 eggs, which are laid in May and June."*

There is a little Spider (*Argyroneta aquatica*), found occasionally in ponds and rivers, which turns its spinning powers to a curious purpose. It forms a residence beneath the surface of water, which, like our diving-bells, is filled with air. It is commonly said that she first spins loose threads, connecting the stems of water-plants, among which she weaves a little cell, which she then manages to fill with air successively carried down in bubbles from the surface, in some unknown manner. But Baron Walckenaer, who writes from personal observation, describes the process differently. The abdomen is covered with a close down, which does not permit the water to wet the skin; when beneath the surface the whole body is enveloped in a coat of air, so that it resembles a ball of quicksilver.

"When the *Argyroneta* would construct its nest, it swims to the surface, and, head downward, protrudes the extremity of the abdomen, dilating its spinnerets, and then dives with rapidity. By this process she produces a little bubble of air, which, independent of the silvery coating which envelopes the body, appears as a little globule attached to the tail. She swims to the stalk of the plant to which she would fix her nest, and, touching it with the bubble, the air detaches itself and adheres to the plant. The Spider then

* Aptères, ii. 4.

remounts to the surface, collects another air-bubble, which she adds to the former. When she has, in this manner, sufficiently enlarged her balloon of air, she encloses it with silk of extreme whiteness. Within this balloon, which is open below, she then sits in a reversed position. She then stretches through the water irregular threads, which converge to her habitation, and which arrest minute water-mites and other insects. These are seized, and carried within doors to be eaten, but sometimes the prey is borne to the surface, and devoured on the bank.”*

Among the largest and best known of our native species is the handsome Garden Spider (*Epeira diadema*). Its form is familiar to every one in the latter part of summer and autumn, its plump abdomen grey or fawn colour, elegantly spotted with white, and its legs widely extended, as it hangs head downward on its perpendicular web, which is formed of concentric circles of fine thread, on a frame-work of radiating lines. This geometric web is a beautiful example of an insect manufacture. Having formed the foundation of her net and drawn the skeleton of it, by spinning a number of rays converging to the centre, she next proceeds, setting out from that point, to spin a spiral line of *unadhesive* thread, like that of the rays which it intersects, and to which she attaches it, and after numerous circumvolutions finishes it at the circumference. This line, together with the rays, serves as a scaffolding to walk over, and it also keeps the rays properly stretched. Her next labour is to spin a spiral line from the circumference towards the centre, but which stops somewhat short of it; this line is the most important part of the snare. It consists of a fine thread studded with minute viscid globules, like dew, which by their adhesive quality retain the insects that fly into the net.† The skilful constructor then stations herself in the very centre, where she

* Aptères, ii. 383. + Blackwall, in Zool. Journal, v. 181.

patiently hangs head downward; and, her feet extended upon the rays, "lives along the line," until the arrest of some unwary fly rouses her to vigorous action. Approaching the struggling victim, she pours out her glutinous web in extraordinary profusion, directing it by means of her great hind feet in a broad and dense ribbon around the fly, whose every limb is rapidly enveloped by it. The pointed poison-claws are now plunged into its body, and the juices sucked at leisure.

The threads of a Spider's web, fine as they are, must not be considered as simple filaments, but as ropes composed of many strands. The spinning apparatus consists of four little teats or warts at the hinder extremity of the body. The upper pair of these are perforated at their tips with innumerable holes of inconceivable minuteness, so as to resemble a colander, and through each of these holes proceeds a thread. The lower pair are similarly perforated, but are set in addition with a number of prominent tubes, which furnish threads also. Within the body at this part there are several bags filled with gummy matter, which at the will of the animal is forced through the orifices, and hardens into elastic silk on exposure to the air. The Spider applying the ends of the teats to any fixed object, the gum adheres, and by her progress a cord is drawn out which consists of as many constituent threads as there are minute orifices in her spinnerets.

Space forbids us to do much more than allude to the renowned Tarantula (*Lycosa tarentula*) of Italy. The bite of this Spider is reputed to produce lethargy, melancholy, and delirium, which are only to be cured by the influence of music exciting the patient to dance. It is now pretty well established that these pretended cures were "got up" for the sake of imposing on the credulous. The Spider itself belongs to a very extensive genus, represented in almost all countries, and everywhere displaying the same habits. They

live on the ground, running swiftly; the females carrying their large egg-case about with them during the breeding season, and refusing to part with it, or if forcibly deprived of it, becoming stupid, and, as it were, stunned, utterly regardless of personal safety, till the dear object is restored, when, in an instant, animation and vigour return.

As there is a Spider which descends by means of its web into the depths of the water, so there are others which, by the same medium, ascend to the regions of the clouds. These are the Gossamer Spiders (*Linyphia*, *Theridion*, &c.), minute species, scarcely exceeding in size a pin's head. They have the power of shooting out filmy threads into the free air, which, on some undetermined principle, usually thought to be connected with electricity, rise with considerable buoyancy, and at length carry up the little aeronaut with them. After a while, becoming saturated with moisture, they descend, and large tracts of ground are frequently seen, in autumn, covered with the delicate films of flocculent web.

The last Spider which we can here notice is the little Hunter (*Salticus scenicus*), which, in its zebra-like marking of black and white bands, is frequently seen leaping on window-sills and garden-fences, in the burning sun of summer. Its manners cannot be better described than in the words of old Evelyn :—"Such I did frequently observe at Rome, which, espying a fly at three or four yards' distance upon the balcony where I stood, would not make directly to her, but crawl under the rail, till, being arrived to the antipodes, it would steal up, seldom missing its aim; but if it chanced to want anything of being perfectly opposite, would at first peep, immediately slide down again, till, taking better notice, it would come the next time exactly upon the fly's back. But if this happened not to be within a competent leap, then would this insect move so softly, as the very shadow of the gnomon seemed not to be more

imperceptible, unless the fly moved ; and then would the spider move also in the same proportion, keeping that just time with her motion, as if the same soul had animated both these little bodies ; and whether it were forwards, backwards, or to either side, without at all turning her body, like a well-managed horse. If, however, the capricious fly took wing and pitched upon another place behind our huntress, then would the spider whirl its body so nimbly about as nothing could be imagined more swift ; by which means she always kept the head towards her prey, though, to appearance, as immoveable as if it had been a nail driven into the wood, till, by that indiscernible progress (being arrived within the sphere of her reach), she made a fatal leap, swift as lightning, upon the fly, catching him in the pole, where she never quitted hold till her belly was full, and then dragged the remainder home.”*

There are several hideous forms of the group in tropical climates, of which the best known is that of the Scorpions. It is impossible to look on one of these, and not be reminded of a lobster, the great palps, with stout dilated pincers, resembling closely the claws of that much more respectable crustacean. The Scorpions are widely scattered ; several are found in the south of Europe, but it is in the tropics that they most abound. The *Scorpio afer* of the East Indies grows to six inches in length, and its sting is rather a formidable affair. We once experienced the effects of a West Indian Scorpion’s venom, which were, however, not more severe than those of a wasp’s or bee’s sting. The weapon is a hooked, very acute joint at the extremity of a six-knobbed tail, within which is a bag of subtle poison, infused into the wound through two minute slits near the point. These animals lurk under stones and in dark crevices, living on beetles and other insects, which they

* “Travels in Italy.”

catch with their claws. Tiny species closely resembling them, except that the tail and the sting are wanting, are common in old books and papers, and sometimes parasitically infesting insects. These constitute the genus *Chelifer*, and form the connecting link between the Scorpions and the Harvest-men or Shepherd-spiders (*Phalangium*), which are so common in autumn, remarkable for the great slenderness and length of their many-jointed legs, which continue to move a long time after being separated from the body.

The tribe of Mites comprises small and generally very minute animals. Scarlet is their favourite livery, and it often has the appearance of satin or velvet. The Water-mites (*Hydrachna*) are merry little creatures that scuttle along through the water of our pools, looking like tiny globules of red sealing-wax. The Cheese-mite (*Siro domesticus*) is so common that possibly, gentle reader, you may have emulated the feats of Samson, slaying thousands at a time, and that with a jaw-bone. If you are fond of dogs or of cattle, you have also, doubtless, made the acquaintance of a vile creature called a Tick (*Ixodes*), which attaches itself to the poor brutes in some spot inaccessible to their efforts—such as behind the ears, or at the root of the tail—and then, plunging a beak of sharp horny lancets into the flesh, sucks the blood, till its own body is gorged and swollen from the size of a hemp-seed to that of a horse-bean, when it drops off to make room for another blood-thirsty sucker. And, finally, some of these creatures (*Sarcoptes*) of minute dimensions, burrowing beneath the skin, become the cause of certain highly infectious cutaneous diseases, which are unhappily too common where cleanliness is neglected.

P. H. G.

ENGLISH LETTER-WRITERS.

SYDNEY SMITH.

SYDNEY SMITH was born at Woodford in 1771. He was the second son in a family of five children. His eldest brother, Robert, like himself, showed uncommon talent at a very early age. The two lads used to neglect their games to debate about books, and their mother reports that they often argued on subjects far above their years with a warmth and fierceness as if life and death hung on the issue. In order, therefore, that there might be no rivalry between them as they grew up, their father sent them to separate schools; Robert and another brother to Eton, Sydney and the youngest brother to Winchester.

At that time our public schools were places of cruelty and horror. In the recipe for curing boys of ignorance, the principal ingredients were starvation, fagging, fighting, and flogging. At Winchester, however, in spite of hunger and neglect, Sydney and his brother were so successful that their schoolfellows refused to compete with them for prizes. It was of no use to do so, said the young gentlemen who signed the round-robin to the Warden. Sydney became an excellent Latin verse-maker. He composed, he said, upwards of ten thousand Latin verses, "and no man in his senses would dream in after-life of ever making another."

He was also a ringleader in mischief. His daughter tells how "he was discovered inventing a catapult by lamp-light, and commended for his ingenuity by the master, who little dreamt it was intended to capture a neighbouring turkey, whose well-filled crop had long attracted the atten-

tion and awakened the desires of the hungry urchins." Nor did the treatment which he experienced, and that which he saw administered, alter or abate a kindliness of disposition which was born with him. A friend wrote to him in great distress for five guineas. He had but four, and these he sent. On his way to the post, he found a guinea lying on the road. He could not discover the owner, so he sent it too. We do not wonder to hear of such a boy that he became Captain of the school; and this, when he left, entitled him to a scholarship and fellowship at New College, Oxford.

When he left College his father was perplexed what to do with him. He himself inclined towards the bar; but his brother Robert was there already. So his father, after determining *not* to send him as a super-cargo to China, induced him to go into the Church—not knowing what else to do with him. He seems to have sacrificed his own wishes to please his father. He took orders, and got a curacy in Netherhaven, a miserable parish in the midst of Salisbury Plain. This outlandish place was visited only by a butcher's cart, and that but once a-week: there was no society but the Squire; and he often dined on a mess of potatoes moistened with ketchup. He worked hard there, nevertheless, in the profession which he had adopted.

The Squire took a fancy to him, and after he had served the parish two years, engaged him to be tutor and bear-leader to his son. They started for Germany, but did not get beyond Edinburgh, as in 1797 the greater part of the Continent was either at war or expecting to be so. They remained here five years, and society being then more attainable to the poor man than it now is there, he gradually became acquainted with a number of men whose names must always be remembered in connexion with his own,

among whom were Jeffrey, and Horner, and Brougham, Dugald Stewart, Playfair, and Walter Scott.

In 1799 he left Edinburgh for a little while, in order to marry Miss Pybus, a lady to whom he had been long engaged. It was well that she had some property, for he had none save six small silver teaspoons, which (says his daughter) from much wear had become the ghosts of their former selves. He insisted on having her portion settled on herself. The Salisbury Squire gave him a thousand pounds; his wife sold some family jewels; and so they were enabled to commence housekeeping when he returned to his pupil at Edinburgh, which he did as soon as possible. Ere long a daughter was born to him, whom he named, after much meditation, Saba, who afterwards became the wife of Dr. Holland; and it is recorded that the nurse found, to her horror, that he had stolen her from the room a few hours after she was born, to introduce her to Jeffrey.

At the same time that his future biographer was thus brought into the world, and put in peril of her life, he and Brougham and Jeffrey were engaged in giving birth to the "Edinburgh Review," of which he edited the first number. The reforms which it helped to promote can only be appreciated, by remembering the amount of injustice and folly which passed for wisdom at the time of its establishment. "The Catholics were not emancipated," he says in the preface to his collected writings; "the Corporation and Test Acts were unrepealed; the Game Laws were horribly oppressive; steel traps and spring-guns were set all over the country; prisoners tried for their lives could have no Counsel; Lord Eldon and the Court of Chancery pressed heavily on mankind; libel was punished by the most cruel and vindictive imprisonments; the enormous wickedness of the Slave-trade was tolerated; a thousand evils were in

existence, which the talents of good and able men have since lessened or removed, and these efforts have been not a little assisted by the honest boldness of the 'Edinburgh Review.'" He might have added to the above enumeration that Dissenters were excluded from the universities, though with as much real right to education there as any other Englishmen, and that more than twenty persons were not allowed to congregate for religious worship without a license.

In 1804, having finished with his pupils, he went to seek his fortune in London. At first he seems to have met with but little success, and it is told that his brother Robert helped him with 100*l.* a-year. Presently, however, he was appointed to a lectureship at the Foundling Hospital, and subsequently to be morning preacher at Berkeley Chapel, alternately with Fitzroy Chapel. He was very successful in the pulpit. All that exuberance of wit and play of fancy, which made him the most amusing and delightful of companions in private, gave way there to a solemnity and emotion which carried with them a conviction of his own sincerity, and which appear in several instances to have produced on his hearers a salutary and abiding impression.

With reference to this part of his story, an anecdote may be repeated. He was one day about to preach at the Foundling, and had selected a sermon containing some hard hits at opinions then rife, which he considered vitally inimical to religion. His wife told him that certain friends would be present, and wished him to change the discourse, as it would give them offence. "I fear it will," he answered, "and am sorry for it; but, Kate, do you think if I feel it my duty to preach such a sermon at all, that I can refrain from doing so from fear of giving offence?" He preached the sermon, and lost the friends.

His great success, however, was in his lectures on Moral

Philosophy, delivered at the Royal Institution. Here wit could be called into play as well as wisdom and eloquence. Their effect was extraordinary. The whole "town" flocked to hear them; and they not only brought him fame, but money, which was now of high importance to him, as his family had increased.

In 1806, to the astonishment of everybody—themselves most of all—the Whigs came into power for a little while, and Lord Holland worked so zealously that he got him the living of Foston-le-Clay. This consisted of about 300 acres of glebe-land, of the stiffest clay, in a remote village in Yorkshire, where there had been no resident clergyman for 150 years. The church was little better than a barn, and the parsonage no better than a hovel. The latter he was soon obliged to rebuild.

"I sent for an architect," he says. "He produced plans which would have ruined me. I made him my bow. 'You build for glory, Sir: I for use.' I returned him his plans, with five-and-twenty pounds, and sat down in my thinking chair, and in a few hours Mrs. Sydney and I concocted a plan which has produced what I call the model of parsonage-houses.

"I then took to horse to provide bricks and timber; was advised to make my own bricks, of my own clay: of course when the kiln was opened, all bad; mounted my horse again, and in twenty-four hours had bought thousands of bricks and tons of timber. Was advised by neighbouring gentlemen to employ oxen; bought four—Tug and Lug, Hawl and Crawl; but Tug and Lug took to fainting, and required buckets of sal volatile, and Hawl and Crawl to lie down in the mud. So I did as I ought to have done at first; took the advice of the farmer instead of the gentleman; sold my oxen, bought a team of horses, and at last, in spite of a frost, which delayed me six weeks; in spite of walls running down with wet; in spite of the advice of friends, who predicted our death; in spite of an infant of six months old, who had never been out of the house, I landed my family in my new house nine months after laying the first stone, and performed my promise to the letter to the Archbishop—a feat, taking ignorance, inexperience, and poverty into consideration, requiring, I assure you, no small degree of energy.

“ It made me a very poor man for many years, but I never repented it. I turned schoolmaster, to educate my son, as I could not afford to send him to school. Mrs. Sydney turned schoolmistress to educate my girls, as I could not afford a governess. I turned farmer, as I could not let my land. A man-servant was too expensive : so I caught up a little garden girl, made like a milestone, christened her Bunch, put a napkin in her hand, and made her my butler. The girls taught her to read, Mrs. Sydney to wait, and I undertook her morals. Bunch became the best butler in the country.

“ Added to my domestic cares, I was village parson, village doctor, village comforter, village magistrate, and Edinburgh Reviewer ; so you see I had not much time on my hands to regret London. My house was considered the ugliest in the country, but all admitted it was one of the most comfortable.”

Some years passed happily away in this place. Those who have only heard of him as a brilliant wit may be surprised to learn that he was an industrious clergyman. But such was the case. The harvest failed one year, and fever followed starvation among the poor. He was indefatigable in providing them with medicine, good counsel, and even food, though his own family were subsisting on cakes made out of the flour of the sprouted wheat. If he had anxieties about money (and with all his frugality he had), he had a charming family about him, good spirits, abundance of occupation, occasional visitors, and troops of friends.

In 1820 a legacy came to him unexpectedly ; and in 1825, a living, which Lord Holland induced the Duke of Devonshire to allow him to hold till the Duke's nephew could take it, put him at his ease in regard to money matters ; and in 1828, Lord Lyndhurst, whose opinions on almost every point in politics were opposed to his, gave him a vacant stall at Bristol, which also entitled him to a living in Somersetshire ; and he resigned Foston and Londesborough for Combe Florey, a smaller, but most beautifully situated living near Taunton. In 1831, Lord Grey gave him a prebendal stall at St. Paul's, in exchange for the one he held at Bristol ; and he passed the

rest of his life in duty either at the metropolitan cathedral or Combe Florey.

"Want of money," he once said, "is a great evil. I declare every guinea I have gained I have been the happier. I was very poor till I was appointed to St. Paul's." An old friend congratulated him on this appointment. "Why," said he, "I think it makes me most happy to feel I can now keep a carriage and horses for *her* in her old age (his wife), which I could not have done before."

Yet he in no wise loved money. The valuable living of Edmonton, which was in the gift of St. Paul's, fell vacant. By the rules of the Chapter, he could have taken it himself, or given it as he pleased. The late vicar, Mr. Tate, was a friend of his own, who, years before, as a Yorkshire clergyman, had stood up with him in favour of Catholic Emancipation. He left a family behind him, his eldest son having been his curate; and Sydney Smith writes to his wife the following account of his interview with the widow and family, after he had determined to give the cure to the son of his old friend, in place of giving it to himself:

"DEAR KATE,—I went over yesterday to the Tates, at Edmonton. The family consists of three delicate daughters, an aunt, the old lady, and her son, then curate of Edmonton:—the old lady was in bed. I found there a physician, an old friend of Tate's, attending them from friendship, who had come from London for that purpose. They were in daily expectation of being turned out from house and curacy. . . . I began by inquiring the character of their servant, then turned the conversation upon their affairs, and expressed a hope the Chapter might ultimately do something for them. I then said, 'It is my duty to state to you (they were all assembled), that I have given away the living of Edmonton; I have written to our Chapter-clerk this morning, to mention the person to whom I have given it; and I must also tell you, that I am sure he will appoint his curate. (A general silence and dejection.) It is a very odd coincidence,' I added, 'that the gentleman I have selected, is a namesake of this family. His name is Tate. Have you any relations of that name?' 'No, we have not.' 'And by a more singular coincidence, his name is

Thomas Tate. In short,' I added, 'there is no use mincing the matter; you are vicar of Edmonton.' They all burst into tears. It flung me also into a great agitation of tears, and I wept and groaned for a long time. Then I rose and said, I thought it was very likely to end in their keeping a buggy, at which we all laughed as violently.

"The poor old lady, who was sleeping in a garret, because she could not bear to enter into the room lately inhabited by her husband, sent for me, and kissed me, sobbing with a thousand emotions. The charitable physician wept too. . . . I never passed so remarkable a morning, nor was more deeply impressed with the sufferings of human life, and never felt more thoroughly the happiness of doing good.

"God bless you.

"SYDNEY SMITH."

Well might Mrs. Marcet write on this to his wife, "What a happy woman you must be to have such a husband!"

This was in August 1843. We read that on New Year's day following he was walking with a friend in his garden when he discovered a crocus which had burst through the frozen earth. He stopped suddenly; gazed at it silently for a few seconds, and, touching it with his staff, pronounced solemnly, "The resurrection of the world!" As his daughter sadly adds, he saw but one resurrection upon earth more. In October 1844, he was taken seriously ill. He was attended by Dr. Holland and Dr. Chambers, but all medical skill was unavailing. He expired on the 22d February, 1845.

In person he is described as somewhat stout made, his face handsome, with a sort of pale *embonpoint*, and a remarkably full dark eye. His voice was deep and musical, his laugh hearty, his elocution exquisite, and his action suitable to the word. He has been compared to Dean Swift; but he had scarcely one quality in common with that sour misanthrope. He loved children dearly, and they loved him. He was full of the milk of human kindness, and not only married the woman who loved him, but made her the best of husbands.

His mode of life was never extravagant. It is somewhere said of him that he considered the comfort and happiness of home the grammar of life : to attain this he denied himself all luxuries. His favourite motto on such subjects (says Lady Holland) was, "Avoid shame, but do not seek glory—nothing so expensive as glory." Nothing, she continues, could be plainer than his table, yet his society often attracted the wealthy to share his single dish.

He wrote an execrable hand. In a letter to Mr. Travers, who had asked to see one of his sermons, he says, "I would send it you with pleasure, but my writing is as if a swarm of ants, escaping from an ink-bottle, had walked over a sheet of paper without wiping their legs."

He never preserved letters. In that exquisite epistle to Sir James Mackintosh's son he says, "You ask for some of your late father's letters ; I am sorry to say I have none to send you. Upon principle I keep no letters except those on business. I have not a single letter from him or any human being in my possession."

It is well for the reading world that his friends did not follow his example, or we should have missed a rare store of amusement, instruction, and delight. One or two chance specimens from them, and we end.

"In sorrow or misfortune the great sting is self-reproach. In all the important affairs of life a man ought to make every possible exertion that he can with honour, and then, and not till then, sit down and cast his care upon God, for He careth for him. Some very excellent people tell you they dare not hope ; why do they not dare to hope ? To me it seems much more impious to dare to despair."

"Never give way to melancholy ; nothing encroaches more ; I fight against it vigorously. One great remedy is to take short views of life. Are you happy now ? Are you likely to remain so till this evening ? or next week ? or next month ? or next year ? Then why destroy present happiness by a distant misery which may never come at all, or you may never live to see it ? for every substantial grief has twenty shadows, and most of them shadows of your own making."

“Living a good deal alone (as I now do—1811) will, I believe, correct me of my faults; for a man can do without his own approbation in much society, but he must make great exertions to gain it when he lives alone. Without it I am convinced solitude is not to be endured.”

“Did you ever hear my definition of marriage? It is that it resembles a pair of shears, so joined that they cannot be separated: often moving in opposite directions, yet always punishing any one that comes between them.”

“Lucy, Lucy, my dear child, don’t tear your frock; tearing frocks is not of itself a proof of genius. But write as your mother writes; act as your mother acts. Be frank, loyal, affectionate, simple, honest, and then integrity or laceration of frock is of little import. And Lucy, dear child, mind your arithmetic. You know in the first sum of yours I ever saw there was a mistake. You had carried two (as a cab is licensed to do), and you ought, dear Lucy, to have carried but one. Is this a trifle? What would life be without arithmetic, but a scene of horrors? You are going to Boulogne, the city of debts, peopled by men who never understood arithmetic. By the time you return I shall probably have received my first paralytic stroke; I shall have lost all recollection of you, therefore I now give you my parting advice. Don’t marry any body who has not a tolerable understanding and a thousand a-year, and God bless you, dear child.”

On looking back over Sydney Smith’s writings and life, we find continual evidence that, though he was a first-rate wit, he was also something more. His character was one of those many-sided, widely comprehensive ones which description will still fail to describe. He was kind when most severe, ever truthful when most witty; he subjected everything to duty; he was honourable in his dealings, hearty, generous, brilliant, charitable, and sincere; and he abounded in common sense. In a word, he was a standing proof that it is possible to be merry and wise, which, as Hood says, is far better than being merry and otherwise.

C. M. C.

OURSELVES.

THE SENSE OF TASTE.

THE Tongue is the principal, but not the exclusive organ of Taste. Its structure is complex, but not complicated; so are its functions. It consists of three layers of muscular fibres, which constitute what are called the *intrinsic* muscles of the tongue, to distinguish them from others; which, although they are connected with it, and act upon it, do not form part of its immediate substance, and are therefore termed *extrinsic*. The fibres of the upper and under layers are arranged longitudinally, from the apex towards the root of the tongue: between these, the vertical, oblique, and transverse fibres, which form its chief mass, are placed respectively to the others, as their names indicate. A small bone, consisting, however, of five distinct portions, called hyoid from its resemblance to the letter *v*, lies immediately under the skin of the upper and posterior surface: it gives firmness and support to the base of the tongue, and affords points for the attachment of the extrinsic muscles. A vertical layer of elastic ligamentous membrane divides the tongue into two portions: it is connected with the hyoid bone, and with the cartilage called the epiglottis (hereafter to be described), which it keeps in a vertical position, and so the air-tube always open, unless when it is pressed down during the act of swallowing.

The whole of the tongue is covered by a thin mucous membrane. On the under side, and at the back part, it is loose and somewhat disengaged, and forms foldings* and reflexions which connect the tongue with the gums and

* One of these folds called the Frænum, or Bridle, might, perhaps, in some instances, be advantageously *a little shorter*.

fauces, and envelope the larger branches of the nerves and blood-vessels, which pass into and out of it. On the upper surface this membrane adheres closely to the muscular substance, and is covered with small projections called *papillæ*. These vary in form and in size. The largest, termed *circumvallate*, about fifteen to eighteen in number, are arranged in two diverging rows at the back part of the tongue; the others, the *conical* and *filiform*, are scattered almost indiscriminately on its surface and sides. A rich network of capillary vessels and nerve fibres, supplies these papillæ and the general surface with blood, and endows them with feeling and the *sense of taste*. The muscular movements of the tongue are induced by separate nerves, the Lingual, which are limited to that especial duty.

Besides being the chief instrument of taste, the tongue assists in mastication, deglutition, and in modulating the voice,—functions, which, without its help, would be very imperfectly performed.

As the sense of smell is only susceptible of impressions made by bodies when in a *gaseous or aeriform state*, so, no sapid substance affects the sense of taste unless it is in a *liquid state*. Hence, dry or insoluble matters, although the tongue be moist—or fluid bodies, if it be dry—only impress it through the sense of feeling, as they affect other parts of the skin. On this account it is that a plentiful supply of saliva,* varying in amount as varying circumstances require, is poured out by an assemblage of glands, which dissolves or dilutes the sapid materials, and fits them for subjection to the scrutiny of the sensuous surface. Every part of this surface is not equally susceptible. If a camel-hair brush is dipped in a solution of salt, or quinine, or in vinegar, and carefully applied to different points, we come to

* Its usefulness in helping digestion will be noticed in a subsequent paper.

know, with considerable accuracy, which are the least, and which the most impressible. In this way, it has been ascertained that the lips, the inside of the cheeks, the gums, the skin of the hard palate, and about half of the fore and upper surface of the tongue, are almost, if not quite, destitute of taste: that the quickest and most energetic perception belongs to the back part where the circumvallate papillæ are placed: that the under surface, especially at the fore part, is very susceptible: and that the tonsils, the uvula, the soft palate, and some parts of the membranous folds, have a considerable, though less delicate, capacity.

By repeated dilutions every sapid material becomes less and less effective, and at last ceases to produce any impression. The delicacy of the sense, and the real and comparative efficiency of different substances, are thus easily tested. Sugar, if dissolved in more than 100 to 140 parts of water, cannot be recognised. Common salt wants twice as much. Sulphuric acid requires from 3 to 4000 times its own quantity; aloes, 3000; sulphate of quinine, 4000. These proportions, however, are not invariable as respects the same individual, for the susceptibility is influenced a good deal by different states of health; and, then, some persons are much more readily affected than others, but they may be received as fair average amounts.

This sense, like that of touch, can be much improved by education and attention. Those who are in the habit of tasting wines and teas, for commercial purposes, readily detect differences quite inappreciable by others.

Custom and prejudice exert a good deal of influence on the sense; and, in many instances, they almost supersede what appear to be natural likes and dislikes; even putrid and rancid matters are agreeable to some, though discarded by most persons: our George the First used to complain that the "English oysters were *too fresh*."

One or two other circumstances are curious as respects this sense: If two substances of different tastes, yet seemingly of equally efficiency, are applied to corresponding parts of the two halves of the tongue, one is perceived in preference to the other; when mixed and diffused over the surface, generally the resulting flavour is compound. Some substances have an after-taste, which differs from the original one. The tongue can discriminate, at the same moment, in the same material,—warm wine, for instance,—its density and its temperature; can recognise its sapidity, and, helped by the sense of smell, appreciate its aroma.

The faculty of selecting from Nature's stores and treasures materials suitable for furthering their growth and for repairing the waste of life, is common to all organised bodies. It is one of the principal features by which they are distinguishable from inorganic substances, and is quite distinct from mere aggregation or the elective affinities of crystallisation.

The physiology of vegetation does not throw much light on the nature of the process by which it is accomplished in plants. The subtle influence by which their energies are directed appears to be as distinct from chemical attraction as it is from animal instinct, though in some instances it seems almost to partake of both.

By the lower orders of animals the discrimination seems to be made chiefly through the sense of touch; and even among the inferior classes of the upper ranks—namely, birds, fishes, and reptiles,—the sense of taste does not appear to avail them much; for in most the tongue is covered with a thick or horny cuticle, and is hardly ever used in mastication.

In quadrupeds the pleasure of eating is limited to appeasing the cravings of hunger and satisfying the necessities of nature; many of them swallow their food almost

entire ; the dog very generally bolts his meal, and the grazing ox mows very indiscriminately in the pasture field —unless there are materials either noxious or unsuitable for nutrition ; even rumination appears to be rather to remasticate than to retaste.

To us is superadded the enjoyment which arises from gratifying the sense ; but then it is an appended pleasure, bestowed on *rational* creatures to be used *rationally*. The limits which *reason* prescribes, and which *religion* sanctions and enforces, are short both of austerity on the one hand and indulgence on the other. It falls more immediately within the province of the Christian moralist and Teacher, than of the Physiologist, to notice and point out those happy consequences which ensue, both to the mind and the body, from following, in this and in all other particulars, the precepts and example of our Divine Master. The bounds, however, which *Nature* imposes are not to be infringed with impunity ; for, as Jeremy Taylor wisely and wittily remarks, “When Voluptuousness and Folly wait at table, Sickness and Death take away.”

P. S.

NOTES ON NORWAY.

No. I.

FIRST IMPRESSIONS. NIGHT IN NORWAY. SABBATH IN BERGEN.

THERE is no country in which the tourist will find the yacht so serviceable as in Norway. Its fjords can only be explored by water, and they supply what is unquestionably the most characteristic as well as the most beautiful scenery of the country. The admirably appointed Government steamers go to the top of some of these inlets, but they leave the passengers no time to loiter in the enjoyment of what is pleasing, or to turn aside for the investigation of what is curious. In the remoter parts of the country there are in many cases no roads, and the transit from village to village and from valley to valley must be made by water. Even the land-traveller finds the number of "water-stages" in his journeys exceedingly large. Besides this, owing to the sparseness of the population, many of the points of greatest interest afford no shelter to the over-land tourist : whereas the yachter who catches a glimpse of a cascade, or a glacier, or a gorge, that tempts to exploration, has only to point his prow in that direction, and cast his anchor near it. No matter to him though he should be separated by impassable mountains from any human dwelling, his floating home supplies him with food, and shelter, and society. And while the landsman can scarcely understand how such narrow accommodations can be tolerated, he only who has day after day departed to enjoy the beautiful and explore the unknown can tell with what relish and with what a genuine sense of home-coming he springs on board on his nightly return.

Nor let it be supposed that the demon of sea-sickness is ever at hand to mar this fair picture. Sailing in the fjords in summer is almost invariably pleasant, and in cruising along the coast you need seldom be out of shelter. The whole coast from the North Cape to the Naze, a distance of about a thousand miles, is protected by a reef of innumerable islands, so interlaced and dovetailed into one another as for the most part to secure the effect of a continuous sea-wall. At intervals, indeed, there are openings less perfectly protected, and where if the winds are from the west the swell of the Northern Sea rolls heavily, but such spaces are few and far between. The North Sea once traversed, the yachter may reckon on day after day of calm and delightful sailing. No doubt the rocks and islands which form this irregular barrier render the navigation intricate, and would make it impracticable in the dark, but there there is no darkness during summer. Even fogs would seem to be rare. During the whole of our cruise, though the mountains were often obscured with mist, it did not on any occasion descend to the sea, so as to interfere with the security or comfort of our progress.

It will not then be wondered at that on board our tight little craft, bent on recreation, in quest of the beautiful, and with the wide world before us, we should turn our prow to the coast of Norway. Our schooner-rigged yacht was of thirty-one tons register, not too small for safety in the passage of the North Sea, and yet small enough for the navigation of those intricate channels and narrow passages which abound on the Norwegian coast. The gentle reader will recognise her under the name of the *Midnight Sun*. Our party consisted of six, three being ladies and three gentlemen, all fired with a sufficiently ardent enthusiasm for the ocean and the north. The crew, including the captain, numbered five.

It was at one o'clock on the morning of Thursday, the 16th of June, 1853, that we sailed from a harbour on the eastern coast of the island. Our voyage was brief and prosperous. The wind blew right after us all the way, changing when our course changed, and following us as faithfully as a stormy petrel in a gale. The study of the Norsk language furnished the chief occupation of the voyage. Early on Saturday we observed evidences that we were approaching land.

Occasionally during the morning gulls and other sea-birds had hovered about our little vessel. Now patches of sea-weed began to appear, and about three o'clock land loomed upon us through the mist. At first we could descry only two rocky eminences, which reminded us of the Bass Rock and North Berwick Law. Soon, however, the veil of mist was lifted up, and the naked coast lay outstretched before us, and a scene of more rugged desolation it would be difficult to imagine. It was a part of the reef of rocky islets which encircles the mainland that we were now approaching, broken into the most wild and fantastic forms by the heavy roll of the Northern Ocean, lashed by the waves, and without a blade of vegetation to be seen upon it. We bore down as close upon it as we safely could, anxiously looking for some sign of habitation, or for some sail; for to attempt to thread our way among these wild islands without a pilot was out of the question. The universal practice among the coasters, of sailing *within* the islands, gives the appearance of desolation to the outer sea. At length a solitary sail appeared at the mouth of a rocky channel. It proved to be the slim boat of a fisherman, who ventured alone into the swell of the open sea. We bore down towards the sail, and soon, while his boat was taken in tow, its primitive-looking owner, clad in home-made frieze, and with locks flowing wildly about his shoulders that had blown in

the breezes uncut for years, sprang on board of us. It was no small satisfaction to have at the helm a man who was acquainted with the intricate passages of the coast, and we were happy to learn from him that we had made the land at a point where we could find easy and direct access to Bergen. Steering straight for the channel, out of which he had just emerged himself, he conducted us through a "gate" not much wider than a turnpike-road,—a kind of passage with which we became familiar enough before we left the coast of Norway. We were soon involved in the windings of the beautiful Fjord, which we found peopled with the huge square sails of the stock-fish boats, which pour in upon Bergen, the great *entrepôt*, by hundreds from the north, as well as the dark little skiffs of the country, which, high and sharp at either end, dart like spirits through the water. The rocky hills which line the Fjord, towered higher and higher as we advanced, while every ledge of rock, broad enough to admit of a patch of cultivation, was occupied by a wooden cottage roofed with brilliant red tiles. Cottage after cottage as we glided along the Fjord peered down upon us like sea-birds perched upon the cliffs above. Flocks of lazy herons on heavy wing, and of swift sea-gulls, kept soaring above us as we advanced. At last, after a delightful run, before a fair breeze, through scenery whose beauties we do not stay to depict, we have cast anchor at the head of the Fjord, among a little fleet of picturesque Norwegian vessels, and set foot for the first time on the soil of legendary Scandinavia.

Though it was between ten and eleven o'clock before we had got ourselves established in the comfortable abode of Madame Sontum, and recruited with some refreshment, the exquisite beauty of the evening fairly drew us again into the open air, and tempted us to ramble up a neighbouring height; strolling at random we found that we had reached a point which commanded a view of both branches of the

Fjord, while the mountains shutting in the head of the valley closed around us in solemn majesty. But the charm of the scene consisted mainly in a something which we know not how to describe—the rich, mysterious light that rested upon mountain and fjord. It was not day, it was not night, but that indescribable and prolonged twilight, which in these northern regions in summer reigns for an hour or two on either side of midnight,—a gracious breathing-time between day and night, a stillness that soothes the work-day world like sleep after fever, when the light of heaven is not vanquished, but chastened and mellowed into richer beauty. In the unaccustomed light the silence that reigned around us was almost startling. The tradesman and the husbandman might have had ample light to ply their tasks, but not a sound came up to us of business or of mirth from the gay white streets of the town that lay below. And, on the Fjord, the wind itself, that had wafted us so briskly to our destination, as if in obedience to the spell that held all nature breathless, had died away. Now and then indeed, the silence was broken, but only to be made more impressive by the measured dip of oars, as some dark skiff was seen emerging from the shadow of the rocks that overhung the waters, into the broader light from the north that streamed along the Fjord. A solitary cuckoo, too, in the distant fields, as if uncertain whether day or night were dominant, occasionally made its voice be heard, but so faintly as rather to harmonise with than disturb the general silence: and soon the musical cry of the night-watchmen, as they carolled *halv tolv* (half-past eleven), broke upon our ears, and then all died away again to stillness. The moon, now almost full, stood round and large above the hills, but scarcely added to the midnight light, while one or two stars struggled almost ineffectually to make themselves visible. Subsequently, as we proceeded northward, to

the regions where the summer sun does not set at all, we saw many splendid midnights, but none of richer, deeper, softer beauty than this. It was impossible not to be reminded of the land where there shall be no more night. At twelve o'clock, ere retiring to rest, we read from the best of books by the unaided light of the heavens, and together offered up the tribute of grateful hearts to Him who clothes Himself with light as with a garment.

The day which followed was the Sabbath. We repaired to the Kors Kirke, or Cross Church, that in which Pastor Reimers officiates. He is one of the most popular preachers in Norway. The church, which holds four thousand, was so crowded that some of us had to stand all the time. The prayers used were partly liturgical and partly extempore, and seemed to be devoutly joined in by the congregation. Singing enters very largely into the service, accompanied by the organ; but here, as in most of the other churches we visited in Norway, was distressingly unmusical. The choir, consisting of six or eight men, all sung a harsh treble, the organ grated forth profuse cacophonies; and when we reached the third line of the various verses of one of the Psalms, the people in the galleries insisted on carrying it their own way, while those below would have it theirs. The sermon followed, the pastor ascending the pulpit in black gown, and, instead of bands, wearing a kind of frilled collar or ruffle, all round the neck, of two or three inches in breadth, such as one sees in ancient pictures of Luther. The minister was animated and energetic in his delivery; and, so far as we could learn, for we at that time knew scarcely anything of the Norsk language, his sermon was evangelical. The communion was then dispensed, only about thirty of the vast audience, however, remaining to receive it. This arose in part, no doubt, from the practice (not, however, followed in all parts of the

country) of celebrating the Lord's Supper every Sabbath,—a custom which, though pious in its design, does not seem to answer the purpose for which it is intended.

We were sorry to observe that there was a crucifix over the altar, and candles at each side: these candles were lighted during the communion-service, and extinguished immediately at its close. It certainly strikes one as strange to find such observances associated with the venerable name of Luther in the "Lutheran Church." There seemed to be less of palpable superstition connected in the minds of the people with the candles, the crucifix, &c., than one might have supposed; but such things can hardly fail to exert a subtle, superstitious influence on the minds of the community. The communicants kneeling round the altar received the wafer and the wine from the hands of the minister, who repeated to each a brief form of words, indicating the spiritual significance of the bread and wine. The minister chanted part of the communion-service alone; and, before leaving the altar, the clerk took off the stole, bearing the cross embroidered upon it, which is only worn during this service, and laid it on the altar. Altogether, the impression was left on our minds that the church and the priest were too prominent in this sacred service, and that there was consequent danger of, in some measure, throwing into the shade Him whose body was broken and whose blood was shed for sinners. After this there was a baptism. The chief peculiarity we observed in it was that the vows were imposed upon the mother, not the father. The questions were addressed to, and the responses made by her as she stood before the minister with a train of female friends, while the father stood aside with his friends. On repeating the words, "I baptise thee in the name of the Father, and of the Son, and of the Holy Ghost," the pastor lavied the head of the child with water at the mention of

each of the sacred names; the child's head being held over the font. He then laid his hand upon its head and blessed it. The mother and her friends then passed round the altar, laying on it a gift wrapped in paper. The floor around the altar and along the passages was strewn with juniper-twigs, which gave out an agreeable perfume. This custom is not confined to churches, we frequently found juniper sprinkled in the lobbies and kitchens of private houses.

So strict is the enforcement of adherence to the established Lutheran Church, that there is no other kind of public worship to be found in Norway, except, if we mistake not, in the case of one Quakers' Meeting in the South. This stringency must, no doubt, militate against the expansion of religious thought and feeling, but we found much reason to conclude that there was not a little sincere and earnest piety to be met with among clergy and people; the simplicity of their natural character, perhaps, acting as a counterpoise to the want of simplicity in the form of worship to which the law binds them. It seems not improbable that the religious movement now in progress in Sweden may end in bursting the bonds of this constrained conformity.

After the close of the service we loitered for a while in the grave-yard of the church. Crosses are frequent upon the graves: the inscriptions generally contain nothing beyond a simple record of birth and death. Occasionally, however, a text of Scripture is quoted. We were pleased to observe the tokens of living remembrance on the resting-places of the dead. Almost every grave had its garland of fresh flowers laid upon it by careful hands, even where death had done his work many years ago. In another place we observed with melancholy interest, in one family enclosure, no less than five graves of children, who might have varied from three to twelve years old. These little graves, each garlanded with fresh flowers, told a mournful tale of

some family hearth made desolate: while the flowers that flourished over the dead spoke of the hope entertained by the living that a spring-time awaits those that sleep in Jesus. After this we went into the Cathedral or Dom-Kirke, where service was still going on. It presents nothing peculiarly worthy of notice. The German Church is the most interesting in Bergen. It dates from the twelfth century, though in great part renewed. The carving of the pulpit is rich and antique, reminding one of the highly carved and graceful pulpits of Belgium. The baptismal font is held by a flying angel in mid air, and is lowered when required.

The Sabbath was well observed in Bergen in the morning of the day. The shops were all closed, and the streets thronged with church-goers. In the evening, however, the town seemed to empty itself into tea-gardens in the neighbourhood. Scandinavia, in common with other parts of the Continent, has felt, though less severely, the contaminating influence of Roman Catholic Sabbath neglect, particularly as regards the afternoon.

R. H. L.

THE PORCUPINE,

(*Hystrix cristata*),

THE "BITTERN" OF THE ENGLISH BIBLE.

THE word "kippod," translated in our version "bittern," and so strikingly introduced by the prophets Isaiah and Zephaniah,* in their pictures of the desolations which are to overtake the cities and lands of the enemies of the Church, was much more correctly rendered by the translators of the Septuagint and Vulgate versions, "ἐχίνος" and "*ericius*"—that is, a spiny animal, a hedgehog. The Hebrew word is easily discernible in "*kangfud*," the name by which the common porcupine is known to the Arabs at the present day; and which, like the Hebrew term, is descriptive of the singular spines with which it is covered on the upper parts. Dr. Shaw, in his "Observations," p. 176; Dr. Wilson, in his "Lands of the Bible;" Messrs. Bonar and M'Cheyne, in their "Narrative of a Mission to the Jews;" and Dr. Keith, in the thirty-sixth edition of his "Evidence of Prophecy," are all persuaded that the porcupine, and not the bittern, is the solitude-loving animal referred to by these prophets.

The Porcupine (*Hystrix cristata*) is a formidably-armed, rodent quadruped, found in most of the countries around the Mediterranean. Mr. Bennet† thus describes some of its most striking peculiarities: "Their covering, instead of being composed of hair alone, consists in a great measure of hollow tubes like the quills of a bird's feathers, generally closed at the extremity, and running out into a fine point, but sometimes truncate and open." He then describes the singular structure of their teeth, and proceeds, "Their tongues are roughed by papillæ similar to those of the cats ;

* Isaiah, xiv. 23 ; xxxiv. 11 ; Zeph. ii. 14.

† Zoological Gardens, i. 171, 172.

their heads are generally short and truncate; their nostrils large and open; their ears and eyes comparatively small; and their general form short, thick, and clumsy."

Messrs. Irby and Mangles found the porcupine abundantly near Aleppo. It inhabits holes in the rocks and in the ground, dug out with its short, thick, strong claws, which are admirably adapted for this purpose. It is so quick of hearing that the natives find it a difficult matter to get a shot at one. The porcupines do not quit their holes till dark, and even then they are so extremely wary and watchful, that the people who pursue them have to wait for hours in the cold before they can secure one. They commit great damage in gardens, by burrowing into them and destroying roots and tender vegetables. The flesh of the porcupine is sold in the markets of Rome, where almost everything found living in the vicinity, from a badger and a fox to a nightingale and an owl, is exposed for sale.* In Syria it is also eaten, and the travellers quoted above record, in their Journal, that they frequently "had the porcupine at table; it forms a delicious dish, somewhat resembling in appearance and taste both the pig and hare." ("Journal of Travels," p. 72.) Dr. Shaw mentions, that in Barbary its flesh is in great esteem, and that when fat and young it is very well tasted. Sir John Richardson compares the taste of the flesh of the Canada porcupine (*Erethizon dorsatum*) to that of flabby pork, and tells us that, though relished by the Indian, it is soon nauseated by Europeans. ("Fauna Boreali-Amer." 215.) The porcupine has not the power of rolling itself into a ball, possessed by the harmless little hedgehog, which is covered with a somewhat similar armature; neither has it the power, with which Pliny and other dealers in the marvellous have endowed it,

* See "Three Months passed in the Mountains east of Rome, by Maria Graham" (the late Lady Callcott), pp. 64-67.

of shooting its spines, as a Parthian did his arrows, against its persecutors. This story may have arisen from some of them having been broken off, and remaining attached to substances into which they have been thrust, as their attachment is but slight. The creature has the power, by means of the subcutaneous muscles, of raising the spines, which are generally decumbent, almost at right angles with the surface to which they are attached. Its usual method of defending itself when provoked is to recline on one side, and on the approach of the enemy, to rise up quickly, and gore him with the erected prickles, should he be foolhardy enough to persevere in his persecution. The wounds inflicted by these spines are very severe, for their points are hard, and edged with two elevated lines, which are minutely jagged.

The porcupine is an unsocial animal, and in captivity displays but few marks of intelligence. Its incisor teeth are of great size and strength, and with them it has the power of gnawing through the hardest boards. It also sometimes uses them in self-defence, and a writer on the habits of quadrupeds has mentioned an instance of its occasional quarrelsomeness which came under his notice. Two porcupines had long lived peaceably together in the same den, but quarrelled during the night, which, as we have observed, is their season of activity. They must have fought with great fury, for in the morning one was found dead, and with every limb bitten off. The survivor, who bore most unmistakeable marks of the contest, had most probably devoured these, much with the feeling as well as the savageness of a New Zealander in former times.

In a state of nature, it would appear that the porcupine, like many of the rodent animals, is subject to a partial hibernation; but its sleep is but short, as it ventures abroad again at the very beginning of spring.

A. W.

PROVERBS OF SOLOMON.

No. II.—“SCATTERING, YET INCREASING.”

“There is that scattereth, and yet increaseth.”—Chap. xi. 24.

WERE it not that the process is so familiar, we would see something very strange in the operations of the husbandman. Here, on the threshing-floor, stands a heap of corn,—so daintily sifted,—so pure and so precious, like a little mountain of burnished gold or glistening pearls; and there, outside, is a piece of ploughed earth, so black and bare and uninviting: and yet into that beautiful heap he plunges his sieve, and from the snug barn carries it abroad and ruthlessly consigns to the cold and dreary loam the bright relics of last summer, and leaves them in the rain to burst and macerate and waste away. You remonstrate, and he replies: “There is no other way to change that black loam into an expanse of waving verdure. And now that this barn is well-nigh empty, there is no other way to fill it with sheaves next autumn. Each of these grains, I hope, will grow into an ear, and for this bushel I hope to get back twenty. I scatter to increase.”

So with the merchantman. How can you let go those sovereigns, so fresh and true, so radiant with the regal visage, so rich in multifarious promise? How can you bring yourself to part with all this solid joy and concentrated happiness? “I intend that they shall come back to me, and before they return I hope each messenger will find his fellow. By trading I hope that my ten pounds will grow to ten pounds more. I scatter to increase.”

But it is not in husbandry and merchandise only that the principle obtains. You read a new publication; and

when you close the book, the story or the argument is bright in your remembrance. But having no society, or having that silent humour which even in society makes the man a solitary, you keep your acquisition to yourself: you never speak of it, and six months hereafter a rusty reminiscence—a dim notion or an ambiguous fact, is the entire remainder: whereas your affable companion, who shared his intellectual feast with friends and neighbours, retains his treasure unimpaired. Or a young scholar is making his first trial of composition; and he fears that this essay will exhaust the sum-total of his literary property. He thinks he has a few good ideas, and one or two rather striking illustrations. But if he puts the whole into the present speech or poem, what is to become of him? There will be no assets left: he will be reduced to intellectual bankruptcy. But you say, No fear. An earnest mind is not a bucket but a fountain; and, as good thoughts flow out, better thoughts flow in. Good thoughts are gregarious; the bright image or sparkling aphorism—fear not to give it wing; for lured by its decoy, thoughts of sublimer range and sunnier pinion will be sure to descend and gather round it. As you scatter you'll increase. And it is in this way that whilst many a thought which might have enriched the world has lain buried in a sullen or monastic spirit, like a crock of gold in a coffin,—the good idea of a frank and forth-spoken man gets currency, and after being improved to the advantage of thousands, has returned to its originator with usury. It has been lent, and so it has not been lost. It has been communicated, and so it has been preserved. It has circulated, and so it has increased.

Again: It is the Christian's duty to scatter kind looks and gracious words, good gifts and friendly deeds; and although not the prompting motive in so doing, God has so arranged the moral husbandry that he who thus scatters

will increase. Not only will he make the world the better ; but a recompense will come back into his own bosom.

The Gospel is the expression of God's love, and the believer is a man who, filled with Heaven's emanating kindness, becomes in his turn a living Gospel. There is an ecclesiastical Christianity, and there is a dogmatic Christianity. The former regards it as the main thing to belong to a particular church ; the latter lays all the stress on maintaining certain doctrines. The true Christian of the one is a sort of kerb-stone, warning off trespassers ; and the true Christian of the other is a denominational flag-staff displaying a specific testimony, or a theological lantern holding on high a certain light or doctrine. But the Christian of the Bible, if he be all this, is also a great deal more. By believing what God reveals, he becomes what God desires—a holy, devout, beneficent presence in society ; a sick world's healer ; a sad world's comforter ; a sympathiser and a fellow-worker with the Supreme Beneficence. Remembering

“ That, throned above all height, He condescends
To call the few that trust in Him His friends ;
That, in the Heaven of heavens, its space He deems
Too scanty for the exertion of His beams,
And shines, as if impatient to bestow
Life and a kingdom upon worms below ;
Like Him the soul, thus kindled from above,
Spreads wide her arms of universal love ;
And, still enlarged as she receives the grace,
Includes creation in her close embrace.”*

In other words, important as are soundness in the faith and steadfastness of principle, these are but the roots and stem from which spring love, joy, peace, long-suffering, gentleness, goodness ; and it is hardly uncharitable to doubt if that religion be Divine which does not visit the fatherless and afflicted, as well as keep itself unspotted from the

* Cowper's “ Charity.”

world. Not that we disparage church order or systematic theology, but that we deem vital Christianity a great deal more than either. It is the life of God in the soul; it is a transfusion into the disciple of the mind of the Master; it is a ray of Divine gladness kindling a human heart, converting it into a living sacrifice, and filling all the circle with such a fragrance, glow, and brightness, as can only be created by fire from heaven.

When a man is thus possessed and animated, it becomes his propensity—a necessity of the Divine and diffusive nature within him—to “scatter.” To do good and to communicate are his purest delight, his favourite and familiar employment. To the hungry he draws forth his soul, and from his relaxing grasp his abundance drops in alms-deeds on the indigent and in alleviations on the surrounding misery. His pleasant words are a healing elixir to the chafed ear of mortified hope or disappointed affection; and even in a case where grief is so great that, like Job’s friends, he is constrained to be silent, there is a soothing charm in his presence, and, refracted through his glistening eye, there steals a ray of comfort into the very soul of sorrow. Moved with compassion for the multitude, he performs a good shepherd’s part to some of those sheep he finds in the wilderness; and with loving contrivance—through the alluring book, or the affectionate letter, or the fervid outpouring of some solemn interview, he longs and labours to lead souls to the Saviour. And betwixt his radiant smiles and cordial recognitions, his obliging services and friendly offices, his gifts and intercessions, his provident care for his own house, and his far-stretching care for the heathen, it would be hard to tell how much he does to augment the sum of human happiness, and diminish human misery. Losing none of its stateliness or strength, in such a man the religion of Jesus puts forth its beauty. No mere sectarian kerb-stone, he rather re-

semples a tree in a linden avenue, whose soft shade and mellifluous murmur at once mark the path and refresh the passenger; whilst a church composed of such members does not suggest lamp-posts all in a row, iron and coldly orthodox, but rather reminds you of an orchard on an autumnal evening fête, where tinted lights gleam forth from every leafy canopy, and mellow apples are handed down by every laden bough, where every trunk is a living pillar, and holy love the banner over all.

The believer in Jesus is the universal benefactor, and it is by such free giving of his free receivings that he not only enriches the world, but that he obtains grace for grace, and augments the strength, the beauty, and the happiness of his own soul. By such scattering he increases.

What we are about to state is not urged so much as a direct motive to Christian love and liberality. Even as a motive it is legitimate, but with a real Christian there are motives of stronger force, and more constant operation. We rather invite attention to that admirable law in the Divine economy which renders good done to the community a gain to the doer; and which, even when the actuating motive is altogether unselfish, makes the result so rich in personal blessing. And surely it is a striking testimony to the Divine benevolence, that God has so arranged the world that every generous impulse does as much for the giver as the receiver, whilst a man is never so happy as when wholly intent on the happiness of others.

Reading over a printed but unpublished memorial of a dear friend, whose face we never saw in the flesh, but who gave tens of thousands to colleges, hospitals, and various charities, we found several entries like the following:—
“Jan. 1, 1849. I adopted the practice ten years ago of spending my income. My outgoes since the 1st of January, 1842, have been upwards of four hundred thousand dollars ;

and my property on the first of this year is as great as on Jan. 1, 1842. The more I give, the more I have." Again: "Jan. 1, 1852. The outgoes for all objects since Jan. 1, 1842 (ten years), have been 604,000 dollars, more than five-sixths of which have been applied in making other people happy." Here is an example of reproductive profusion,— "The more I give, the more I get ;" scattering, yet increasing. And, along with the increase of substance, what is still rarer and more precious, the increase of personal felicity. Instead of scattering, had he concentrated all this outlay on himself, had he spent the half million on dainty viands and costly wines, on sumptuous furniture and glittering vehicles, he would have done no more than many do, on whose careworn, dissatisfied countenances, God has inscribed the curse of self-idolatry ; but by spending it in the effort to make other people happy, Amos Lawrence extended the sphere of his enjoyment as wide as the objects of his philanthropy, and in his shining face he habitually showed that God had given him the blessedness of a man for whom many prayed and whom He Himself greatly loved.

So essential to the truest enjoyment is a generous disposition, that we cannot refrain from quoting the words of one whose kind deeds were almost as numerous as his brilliant sayings, and who gives the following "Receipt for making every day happy :"—" When you rise in the morning form the resolution to make the day a happy one to a fellow-creature. It is easily done ; a left-off garment to the man who needs it, a kind word to the sorrowful, an encouraging expression to the striving ; trifles in themselves, light as air, will do it, at least for the twenty-four hours ; and, if you are young, depend upon it it will tell when you are old ; and, if you are old, rest assured it will send you gently and happily down the stream of time to eternity. By the most simple arithmetical sum look at the result ; you send one

person, only one, happily through the day ; that is, 365 in the course of the year ; and, supposing you live forty years only after you commence that course of medicine, you have made 14,600 human beings happy—at all events for a time. Now, worthy reader, is not this simple ? It is too short for a sermon, too homely for ethics, and too easily accomplished for you to say, ‘ I would if I could.’ ” *

What Sydney Smith recommends was the practice of Cotton Mather, two hundred years ago. Few men have ever condensed into the narrow limits of human existence so much substantial service to their fellow-creatures as that good man, whose name is still a household word in New England homes. And it would appear that it was his custom every morning when he awoke to consider these three things,—What is there I can this day do for the welfare of my family ? What is there I can do in the service of my neighbour ? What is there I can do for the glory of God ?

Reader, are you not so happy as you would like to be ? Then learn to be unselfish. If your acquaintances, or even your relations, are not all that you could wish them, make a little more effort to render yourself agreeable or useful to them, and you will be surprised to find how much they improve, and how remarkably you and they deepen into one another’s affection. If you have hitherto been spending all your income on yourself, and are no whit the happier ; if every stick and straw you carry home for the improvement of your own nest, and still do not find it comfortable, try the scattering system : go to the help of others, and you will make the delightful discovery that the wealth which was too small for one, is ample when dispersed over many ; that the best way to make your own lot delightful, is to labour for the good of your brother. You who complain that you cannot find the consolations of religion,—you read, you frequent the sanctuary, you come to the communion, and yet you cannot

* “ Memoirs of Sydney Smith,” ii. 295.

realise your own interest in the Saviour, "why stand you all the day idle?" Go, work in the vineyard; and as you try to reclaim the vicious, to instruct the ignorant, to guide inquirers to the Cross, you will find your views of truth growing clearer, and your heart growing warmer, till at last you shall be unable to deny that Jesus is the Master, and that you are His servant. And you who complain that you have no enlargement in prayer,—you try to confess your sins, to pray for your own salvation, to ask the Holy Spirit for yourself, and yet the aspiration will not ascend; the faint petition falls short of Heaven. Try to intercede. Think of others. Think of our soldiers on the battle-field. Think of your afflicted neighbour. Think of the prisoners in Papal dungeons. Think of the perishing heathen. And as thus you think you may find that you have risen to that region where prayer is already answered, and that, after becoming inaccessible to habitual egotism, the door of the mercy-seat has been thrown open to brotherly-kindness and charity.

No doubt, to render a service to another needs self-denial. We cannot do at one and the same moment what is easiest for ourselves, and at the same time best for our neighbour; but by doing what is best for him, we do what is, in the long-run, best for ourselves. That bushel of corn,—the farmer knows very well that he cannot use it as bread, and at the same time use it as seed. To eat it at once would be easiest; but "man shall not live by bread only," and for the sake of next harvest, and all the good things which that harvest may procure, he denies himself, and instead of baking and eating this bushel, hungry as he is, he consigns it to the faithful furrow.* Perhaps before that harvest comes, he himself may be "sown" in the sepulchre; but no matter,—the harvest will come, and when it arrives, the world, perhaps his own family, will be twenty bushels richer for the one which his forethought and self-denial scattered. This

* See "Excelsior," vol. ii. p. 74.

hour of time,—you cannot spend it at once in recreation and in beneficence. It looks more enjoyable to bestow it on an entertaining book or a country walk; but you might employ it in finding a situation for that poor fatherless boy, or in visiting that bed-ridden neighbour. And those guineas you cannot spend at once on yourself and on others. It would be most natural, and at the first blush it seems most desirable, to get the bust or the picture you so long have been coveting, or to spend them on a festive occasion which you have sometimes been mentally planning. But in that case you cannot spend them in charity. You cannot buy back his tools and his furniture for this hard-working artisan, who has been laid aside by a twelvemonths' affliction. You cannot give the donation you would like to contribute to yonder school or home-mission. You cannot present a lending library to your native parish. But should God incline your heart aright,—at the critical moment, should He lead you to think of the future more than of the present,—should He inspire you to take for your model the self-renouncing Saviour, rather than the self-indulgent epicures around you,—you will forego a momentary gratification for the sake of enduring usefulness. And although that may not be your motive, such is God's arrangement. What you have preferred to scatter rather than devour, He will take care that it shall yield increase. He will make it fruitful. The very effort—the self-sacrifice—the devout or philanthropic achievement, He will make a blessing to your own soul. And whilst He will see to it that those you love are no losers for such merciful loans, He guarantees the harvest against that day when the salvation of another's soul, or a jewel added to the Redeemer's diadem, will, to the perfected spirit, be a satisfaction unspeakably more exquisite than the remembrance that it once dwelt in a cedar palace, and commanded the plaudits of Christendom.

J. H.

REVIEW OF THE MONTH.

By a new postal arrangement, a publication, not exceeding four ounces in weight, may be transmitted to any part of the United Kingdom for a penny. That is to say, any of our readers may send a number of "Excelsior" to his friend in Shetland or Guernsey at the price of an ordinary letter. All that is needful is to put it into a wrapper, which, whether sealed, wafered, or tied with a string, must be open at either end, taking care that there is no writing on the publication itself, nor any pen or pencil mark, which might give it the character of an epistolary communication.

Taking advantage of the repeal of the compulsory stamp for newspapers, a variety of new serials have started into existence. Of those which have fallen in our way, none promise so well as the "Illustrated Times." For twopence a-week it supplies a family paper, containing all the pictorial embellishments which have rendered the "Illustrated News" so deservedly popular; and as its literary excellence is equal to its artistic beauty, we have no doubt that it will find a high place in public favour.

A few months ago, the Burnett prizes, of 1800*l.* and 600*l.* respectively, for the best essays on the existence and perfections of God, were awarded to the Rev. R. A. Thompson, M.A., of Louth, Lincolnshire, and the Rev. Principal Tulloch, of St. Andrews. Under the title, "Theism: The Witness of Reason and Nature to an All-Wise and Beneficent Creator," Mr. Tulloch has published his treatise. The illustrations drawn from the material universe have been chiefly derived from secondary or popular sources; but in the statement of first principles, and in the argument founded on the structure of the human mind, the work is original and masterly.

Two welcome additions have just been made to our stores of biographical literature. Lady Holland has published the *Memoirs and Letters* of her father, the Rev. Sydney Smith, which we have read with a considerable feeling of relief and satisfaction. Perhaps there never was a wittier Englishman. Many lack the attribute altogether, and in many it is so latent that it needs a flint to strike out the fire; but Sydney Smith was phosphorus: whatsoever thing he touched, he left it thenceforth shining. But we hardly knew what a humane, hard-working, dutiful man he was, and we rejoiced to find so many traits of the cordial friend and conscientious citizen. At the same time we cannot sufficiently deplore that prejudice and the infelicities of his position prevented him from acquiring a better acquaintance with the religion of which he was a minister, but of whose characteristic doctrines faint traces only can be found in his otherwise vigorous and sensible sermons.—And at last a worthy memorial of Sir Isaac Newton has appeared, and that from the pen of a philosopher who has done much to perfect and apply some of Newton's most interesting discoveries. Sir David Brewster has ransacked the family papers, and has compiled with affectionate devotion all the information which can now be recovered regarding this brightest light in England's scientific galaxy; and as the result he has produced a biography teeming with instruction and glowing with eloquent enthusiasm. Some readers may grudge as an interruption to the narrative the portions which trace the subsequent progress of the Newtonian theories; but whilst admirable in themselves, these add greatly to the scientific completeness of the record.

In his "*Notes of a Tour in the Valleys of Piedmont*," Mr. Noel describes what he saw during a recent visit to the Waldenses. With a spirit full of sympathetic heroism, and minutely conversant with their marvellous history, he has

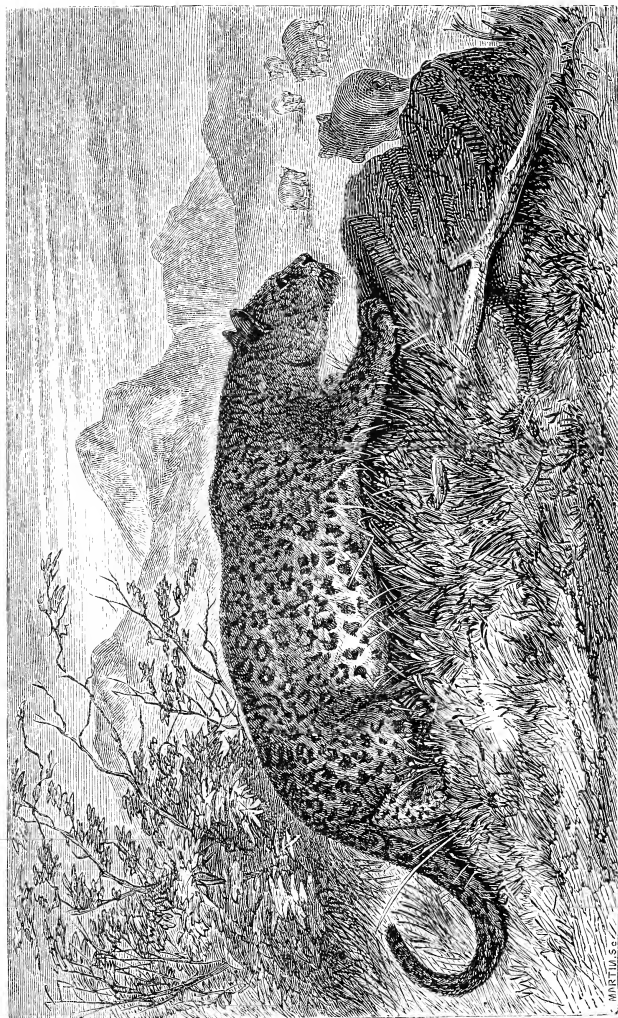
thrown a large amount of information into these unpretending "Notes,"—which are further enlivened by some "Lays" of great power and beauty. As in some respects a kindred volume, we must here record Mr. Wylie's "Pilgrimage from the Alps to the Tiber." This "Pilgrimage" was so far confessedly polemical: the author wished to see "the influence of Romanism on Trade, Justice, and Knowledge." The result is a frightful picture; but unfortunately, it is only by being frightful that such a picture can be true. The narrative of Mr. Wylie's travels is extremely interesting. Animated, energetic, earnest; sometimes relieved by hits of caustic humour, and still more frequently rising to strains of noble eloquence, it carries the reader agreeably along.

Our friend, Mr. Gosse, proposes to form, about the middle of this month, at Ilfracombe, a class of ladies and gentlemen for the study of Sea-side Natural History. The plan embraces daily excursions and examinations of specimens, with occasional lectures on Marine Zoology; and we can imagine no more delightful combination of amusement and instruction than that which awaits the students under such a professor.

The King of Sardinia has issued a decree suppressing 334 monasteries, inhabited by 4125 monks and 1473 nuns. There are still permitted certain convents, inhabited by 863 monks and 1699 nuns.

In Spain the press is now free, so that there is every reason to hope that the Word of God may soon find wide circulation among its long-benighted inhabitants.

By the death of Dr. Gaisford, Dean of Christ Church, Oxford has lost a classical scholar of European reputation. His "Suidas" and "Etymologicum Magnum" are books which ordinary students seldom consult; but amongst the Greek adepts of German universities they have earned a high renown for their author.



The Leopard. (*Felis Leopardus*, var. *Nimr.*)

CHRISTIAN AND ECCLESIASTICAL SACERDOTALISM.

AMONG the various points in which Christianity stands eminently distinguished from all other religious systems that have prevailed in the world, there is, perhaps, none in respect of which it has been so fraudulently, or carelessly, confounded with them as in that involved in the charge of Priestcraft, which has been indiscriminately brought, and entertained, against all religions. We find Infidelity continually asserting, and Indifferentism acquiescing in the assertion, that all religions that have ever prevailed among mankind have their Priests and their Priestcraft; and they are all designated as so many systems of imposture, devised by Priests for the purpose of establishing their own influence, by keeping the people in ignorant subjection. And yet, whatever grounds for such cavils the corruptions introduced into Christian Churches in respect of a Priesthood may afford to Ignorance, Indifference, or Fraud, it is certain that the application of this character to Christianity, either directly or by implication, is a sophism which no man of acuteness could employ, who was not either wilfully misleading others, or himself blinded by the obstinate prejudice of a corrupted heart. For in this point Christianity is so remarkably distinguished, not alone from the various systems of man's devising, but also from even the true religion of Moses, that our readiest and shortest answer to all the idle clamours afloat about Priestcraft will be, that Christianity, as found in the Scriptures,—Christianity unperturbed by man—has no Priestcraft, for the simple reason that it has (in that sense of the word in which our opponents employ it) *no Priest upon earth*. And that this

is really the state of the case—that the inspired promulgators of Christianity did not establish any office corresponding to that of the Pagan or Jewish Priest, is easily proved to any man of intelligent and unbiassed mind, when once his attention has been called to the question. And attention can hardly be called to a more important question; for nothing has tended more to alter the character of our religion, or has led to more pernicious errors, doctrinal and practical, than the abuses as to the institution of the Christian Priesthood, introduced by the Greek and Romish Churches, as also by some Protestants, and the mistakes regarding it; more or less gradually, and more or less completely, transforming the ministers really appointed by the Apostles into Priests corresponding with those of the Jewish and Pagan religions,—men to officiate as such, to offer up sacrifices, and to act as mediators and intercessors for the people.

The corruptions on this point, while they have their origin (as we shall have occasion to observe) in some strong cravings of the natural man, have been favoured by the casual ambiguity of the word “Priest,” by which the superficial and unthinking have been misled so as to confound a distinction, which it implies the grossest ignorance to overlook, or the grossest dishonesty to suppress.

It is well-known that certain ministers of religion were ordained by Christ and His Apostles, and have continued in an unbroken succession down to the present day—a succession, however, to be carefully distinguished from the *descent* in an unbroken line of this or that individual minister; the succession of *an order of men* being, perhaps, as complete a moral certainty as any historic fact can be, while there is not an *individual minister* in all Christendom who is able to trace up to the Apostles, with any approach to certainty, his own spiritual pedigree.

Now, as we naturally apply our own name for the ministers of our own religion to the ministers (in whatever sense) of any other religion, it is not to be wondered at that the name "Priest" should be applied in common to this order of men and to the ministers of all religions. But no scholar is ignorant that the English word "Priest" is often employed for the rendering of two different words in Greek, namely "Hiereus" and "Presbyteros," which seem by no means to be used synonymously. The word "Hiereus" is invariably applied by the Sacred Writers to the Priest both of the Jewish and Pagan nations; but is never applied by them to the Christian minister, who is called by them "Episcopos," or oftener "Presbyteros," from which last our English word Priest is manifestly formed. It is remarkable, however, that Presbyteros is never rendered "Priest" in our version of the Bible, but always, according to its etymology, "Elder;" and that wherever the word "Priest" occurs there, it is always used to correspond to Hiereus (in Latin Sacerdos) and means a *Sacrificer*.

Now this circumstance alone would surely be a strong presumption that the Sacred Writers regarded the two offices as essentially distinct; for, perfectly familiar as they were with the name, it is absolutely incredible that they should not have employed the same appellation, had they designed to institute any order of men corresponding with the Jewish and Heathen Priest, or to execute themselves, or to delegate to any others, such office. The mere circumstance that the Christian religion is very *different* from all others, would of itself have been no reason against this; for the difference is infinite between the divinely-instituted religion of the Jews, and the idolatrous superstitions of the Heathen; and yet, from similarity of office, the word Hiereus—the word never applied by the Sacred Writers to the Christian minister—is applied by them to the ministers of both these religions.

The difference of *names*, then, in such a case as this, would, even of itself, lead us to infer a difference of things; and to conclude that the Apostles regarded their religion as having no Priest at all on earth, in the sense of Hiereus (sacrificing Priest). And the difference is not slight and verbal, but real and essential; for it was manifestly the essence of the Jewish Priest's office to offer sacrifice and atonement for the people—to address the Deity on their behalf as a mediator and intercessor—and to make a propitiation for them, and to perform certain ceremonial rites which could only be duly performed by him; whereas the office of the Christian minister is such as totally to preclude all idea of *his* making himself the mediator between God and man. To the Elders or Presbyters, whom the Apostles by their Divine commission ordained, it belongs (not exclusively indeed, but principally and especially) to instruct the people, to preach the Gospel, and to administer such rites (the Christian sacraments) as are essentially different from sacrifices—and even the administration of these rites, it is remarkable, is not, by any express injunction of Scripture, confined to them.—So little was the instruction of the people a special office of the Jewish Priest, as it is of the Christian minister, that it was allotted to the whole of the Levites; and so little appropriated even to them, that persons of any other tribe,—as for instance, our Lord Himself, who was of the tribe of Judah, and Paul of the tribe of Benjamin,—were allowed to teach publicly in the synagogues. But there was no such indiscriminate admission to the office of Sacrificing Priest, since the most tremendous punishments were denounced against any who, not being of the seed of Aaron, presumed to take upon them to burn incense and make oblations. The Israelites were indeed called in Scripture “a kingdom of Priests:” but this was to guard them against the notion (not uncommon among the

heathen) that religion was the exclusive concern of the Priests; and to impress upon their minds that they were required to worship and serve God, their Lawgiver and King, themselves; to keep themselves from all defilement, moral or ceremonial; in short, to be Priests in piety of heart and holiness of life. And this application of the title of Priests to the people at large, might also have been intended to point out that the mysteries of the true religion of Moses—instead of being confined, as amongst the heathen, to a chosen few—were revealed, as far as they were revealed at all, to the whole of this favoured nation.

Again—the Priesthood of the Pagan imitations of the truth, and that of our own religion, are not merely *unlike*, but in the most essential points, even *opposite*. *They* offer sacrifices for the people; *we* refer them to a sacrifice made by another: *they* profess to be the mediators through whom the Deity is to be addressed; *we* teach them to look to a heavenly Mediator, and in His name boldly to approach God's mercy-seat themselves: *they* study to conceal the mysteries of religion; *we* labour to make them known: *they* have, for the most part, hidden sacred books, which none but a chosen few may look into; *we* teach and exhort men to study the word of God themselves: *they* strive to keep the people in darkness, and to stifle inquiry; *we* make it our business to enlighten them, urging them to "search the Scriptures," to "prove all things, and to hold fast that which is right:" *they* practise the duties of their religion *instead* of the people; *we* instruct and admonish all to practise them for themselves. And it may be added, that *they* in general teach, that a devoted confidence in them, and obedience to their commands, will serve as a substitute for a moral life; while we declare to them from Scripture that it is in vain to call Jesus Lord, if they "do not the things which He says."

It deserves, then, to be kept in mind, that the title Priest, when applied to the Jewish and Pagan Priests, and to the Christian, is applied in two different senses; the essential circumstance which *constituted* the priestly office in the former being wanting in the other; and that, in the sense of Hiereus, the Christian religion, as taught in Scripture, is without a Priest on earth.

And yet, in opposition to this its manifest character, the very institution which Christianity in its pure state had abrogated was grafted into it, as it became corrupted with human devices. And we now find the Romish and Greek Churches, as well as certain modern, professedly Protestant, maintainers of what they call Church-principles, transforming the Presbyter of the Gospel-dispensation into the Sacrificing Priest of the Jewish and Pagan religions;—and we are told of sacrifices and altars—of an offering in the Communion of the real body and blood of Christ, as an expiatory sacrifice for the sins of the living and the dead; and the office of offering them as a sacrifice to God is represented as the most dignified office of the Priesthood.

The question is: Did the Apostles agree with them?—We have already seen that, throughout the New Testament, the Sacred Writers never use the term “Priest” in the primary and customary sense, in reference to any office instituted by them. But this is not all—for this is no mere omission on their part—not only do they perpetually mention, and allude to, the existence of Sacrificing Priests and Sacrifices among the Jews and Pagans; but they also perpetually mention and allude to them in reference to the religion of the Gospel, invariably, and manifestly in a *different sense*. It is not a silence as about things indifferent, and therefore left at large; for, while they continually bestow the title of Priest on Christ Himself, and point to Him as, at once, the Christian Priest and the Christian sacri-

fice, they plainly and distinctly exclude from the Christian dispensation all other Sacerdotal Priesthood and all other expiatory sacrifice; declaring Christ to be the one only Mediator and Intercessor between Man and God; and while continually speaking of an atoning sacrifice, it is of that "one offering of the body of Jesus Christ once for all," by which "sacrifice of Himself," they tell us, sin has been for ever "put away." They teach us, that "this Man, having offered one sacrifice for sins for ever,* sat down on the right hand of God;" and having "obtained eternal redemption for us, entered in into the Holy Place by His own blood." And so far are they from agreeing with those who regard the Eucharist (Lord's Supper) as a sacrifice offered up, day by day, repeatedly, that, while proclaiming the perfection of the *one* oblation of our Lord by Himself, they prove the imperfection of the Levitical sacrifices, from the very circumstance of their being repeated "year by year continually;" inasmuch as "they would have ceased," says the Apostle, "to be offered," if, like the sacrifice of Christ "once for all," they could have "made the comers thereunto perfect." And it is remarkable, that even in any of the figurative allusions to the rites of the Old Testament, the minds of the Sacred Writers never turn to the Lord's Supper as a thing that should be, even *figuratively*, described as a Sacrifice. Thus (Heb. xiii. 15, 16), the Apostle Paul describes the sort of sacrifices which Christians can offer, as *contrasted with those of the Jews*. "By Christ" (through Him, not through our clergy) "let us offer the *sacrifice of praise*, to God continually, even the *fruit of our lips*, giving thanks to His name. But to do good, and to communicate" (impart of our wealth to our needy brethren), "forget not, for

* Hebrews, x. 12.—In this verse as it stands in some late editions of the Bible, there is a mispunctuation not found in the older editions. It should be read as above.

with such sacrifices God is well pleased." Again (Rom. xii. 1), "I beseech you . . . that ye present your bodies, a *living* sacrifice, holy, acceptable unto God, which is your reasonable" (rational) "service,"—" *living*," as distinguished from the *slain* victims offered on the altar, and "rational," as contrasted with the *irrational* animals.—And Peter speaks of "spiritual sacrifices" to be offered up by "a holy Priesthood." And it is worthy of remark, that here, as throughout the New Testament, the title of Priest, when applied to any of Christ's followers, is applied, not to any particular order of Christians, but to *all* Christians. "Ye are," says the same Apostle, "a royal priesthood :"—" *Ye*," not *we* Apostles, exclusively or specially, but all Christians. But, while all without exception are called "Kings and Priests," yet being (*as* Christians) Kings without subjects, and priests without people, they are so styled only figuratively, and merely in reference to the exalted state of glory to which they are called, and to their oblation of *themselves*. And, following out the same thought of Christians being themselves a sacrifice to God, we find that when Paul is actually *searching* for something in his own office to parallel with the functions of a Priest, it is to his character as a preacher of the Gospel—as a converter of men (the living sacrifices), that his mind turns, and he thus figuratively describes himself, as in that respect resembling a Priest—"as ministering" (in respect of) "the Gospel of God, that the *offering* up" (oblation) "of the Gentiles might be acceptable, being sanctified by the Holy Ghost." It is to this he turns as "whereof to glory, through Jesus Christ," and not to the privilege of consecrating the bread and wine in the Communion. Often and largely as the duties and dignities of the Christian ministry are described by the Apostles, the mysterious power of *making* the body and blood of Christ, and offering it up for sins, is never so much as

glanced at in a single passage. In short, the spirit of their teaching, as well as the letter, is that there is one only Sacrifice for sin once offered—that there is but “one Mediator between God and men”—but one Intercessor with the Father, his Son Jesus Christ, both God and Man—that He is the only “propitiation for our sins”—He the only Priest—that “no man cometh unto the Father but by Him.” “Now of the things which we have spoken,” says Paul (Heb. viii. 1), “this is the sum: We have such an High Priest who is set on the right hand of the throne of the Majesty in the heavens.” Those, therefore, who, without being called of God, *assume to themselves* the office of mediators and sacrificing priests over their brethren, intrude upon the exclusive privilege of the true priest, even as the Levite Korah usurped that of Aaron. It is not enough for these men, that “they stand before the congregation to minister unto them,” but they must needs “seek the Priesthood also.”

Such, then, is the real character of our religion as respects Sacerdotalism; and the contrast it presents in this point to all the religions that exist, or ever existed, besides it (including the Jewish), will afford, if we rightly consider when and by whom Christianity was first promulgated, one of the most powerful evidences of its truth. For this peculiar characteristic of our religion is utterly at variance with the notions which would naturally have occurred to the unassisted mind of man. In all ages and countries mankind have ever shown a tendency to attempt the performance of various duties, but especially their religious duties, by *proxy*. Man, except when unusually depraved, retains enough of the image of his Maker to have a natural reverence for religion and a desire that God should be worshipped; but, through the corruption of his nature, his heart is (except when renewed and purified) too much alienated from

God to take delight in serving Him. Hence the disposition men have ever shown to *thrust* the Priest forward between themselves and the unseen world—to substitute the devotion of the Priest for their own—to leave the duties of piety in his hands, and to let him serve God in their stead—to have, in short, one to whom they may apply, “Give us of your oil, for our lamps are going out.” A familiar, but incorrect, analogy between the several professions has led men to feel rather than distinctly maintain, that as they confide the care of their bodily health to the physician, and of their legal transactions to the lawyer, so they may commit to a distinct order of men the care of their religious concerns, and serve God by proxy. Perceiving that the clergy are *peculiarly bound* to know the truths of religion, *in order that they may teach others*—and to strict life, as *an example to others*—and to take a leading part in the service of the Church, *for the sake of order in the congregation*—they forget the reasons, and begin to think that the clergy are to do all these things *for them*.

Now is not the complete exclusion, in the religion proclaimed by the Apostles, of all that could be an accommodation to this tendency of human nature, wholly inconsistent with its being a human device? Again, the Gospel-religion was introduced by men, and among men, whether Jews or Gentiles, who had never heard of, or conceived, such a thing as a religion without a Sacrificing Priest—without altars for sacrifices—without sacrifices themselves. Now, not only is it inconceivable, that any impostor or enthusiast would have devised or dreamed of anything, both so strange and so unacceptable, as must have seemed in those days a religion not having any of these things (in the sense in which men had always been accustomed to them); but also it is no less incredible, that any persons unaided by miraculous powers should have *succeeded*, as the Apostles

did, in propagating such a religion.—What is the inference to be drawn? Evidently, that the Apostles must have acted under super-human guidance, and that the religion is, in truth, of divine origin. And the subsequent introduction of these things, after the religion had been established without them, and in direct opposition to its manifest character, through the strong craving, if I may so speak, of the natural man for such things, proves, with more complete certainty, the superhuman origin of the original institution. The ONE religion that is free from corruption traceable to human nature, must be the ONE that is *not* of human origin. Now, every argument against its human origin is an argument in favour of its divine origin.—What did not come from man, must have come from God.

There is no aspect, indeed, in which this subject of the Christian Priesthood can be viewed, that will not lead to the conclusion, that the importance of sound Scriptural views of it can hardly be over-rated. It will be found, on examination, that a very large and important portion of the errors that have found their way into the Church are intimately connected with mistakes and perversion of the true character of the Christian Priesthood. And as these errors are the natural growth of human nature, none that share that nature can be free from all danger of falling into the same errors, in a similar or a different shape. The tendency to substitute the devotion of the Priest for their own, and the performance of rites and ceremonies (whether of divine or of human appointment), for true and practical piety, that men have ever shown, has its seeds in the corrupt soil of the human heart—seeds ever ready to spring up under new names; and he who knows this, and believes that there is a Spiritual Tempter of that heart, must feel that he cannot be too cautiously on his guard against dangers on this point.

To those who did not know the liability of men to main-

tain at once opposite errors, it might seem strange that the very persons who are found advocating the introduction into Christianity of Sacrifices and Sacrificing Priests, though not only unauthorised, but plainly excluded by its inspired promulgators — these very persons deny that any Church is at liberty to depart, even in matters left undecided in Scripture, from the supposed, or even conjectured, practice of the Apostles; thus, at once denying the right which does belong to a Christian community (as to every other), to make and alter bye-laws in matters not determined by a superior authority, and asserting the rights that do not belong to it; — at once fettering the Church by a pretended obligation to conform strictly to some supposed precedents of antiquity, and boldly casting off the obligation to adhere to the plainest injunctions of God's written word. “Full well do ye reject the commandment of God, that ye may keep your own tradition.”

It is also worthy of remark, that the notion of a Sacerdotal Priesthood in the Christian Church, and that of Apostolical Succession (in the sense of the Romanists, and of a certain party among Protestants), are generally maintained *together*. And yet they are not naturally and intrinsically connected; and there are some few persons, though but very few, who hold the latter doctrine, and not the former. But in the absence, in the New Testament, of directions as precise and injunctions as strict, respecting the mode of ordaining Christian ministers—the rules for their succession and the functions they were to exercise—as were given in the Mosaic Law relative to the Levitical Priesthood—an absence which the advocates of the Apostolical Succession of every individual minister cannot quite conceal from themselves, they are naturally driven to resort to the analogy of the Mosaic Law; which does give (in respect of a *Sacerdotal* Priesthood) just such precise directions and strict injunctions.

And thence it is, I conceive, that men have been so often led to represent the Christian ministers as the regular successors of the Levitical, and Christian places of worship as successors of the Temple; and, in short, to judaïse Christianity all through. —This will account for the fact (which I never heard accounted for in any other way), that almost every Church, sect, or party, that has adopted the above view of Apostolical Succession, has also adopted, either at once, or gradually, that of a Sacerdotal Priesthood also.

But, in whatever way the holding of the two tenets together may be accounted for, it seems to me that Apostolical Succession must tend, as Sacerdotalism does, to minister to that favourite object of unregenerate man, the substitution of a religion of mere outward rites and ceremonies for devotion of heart and life. For it is manifest, that the validity of the claim must depend upon the being able to trace, with positive certainty, a descent from the Apostles, unbroken by any irregularity, and without one flaw; as one defective link would (on the theory of its maintainers) be enough to break the whole chain. Now, to maintain unbroken that regularity, notwithstanding all the risks Apostolical Succession must have run, in passing through so many generations, would require a perpetual miracle. And to suppose the occurrence of a miracle in this case, when no such miraculous interference came in to secure the “Apostolical Succession” of right faith and right conduct, is to lead eventually both those who believe and those who disbelieve the plea to the same conclusion, practically, that Christianity, if this be a true representation of it, is *mainly* a system of outward ordinances; and a Christian faith and a Christian heart are comparatively a small part of it; that external rites and the outward frame of the Church are the *essentials* of the religion of Christ, and purity of faith and morals only *accidental* to it.

And yet, fruitful of errors as are these things, we are continually hearing of them as fitting the Church to be “a witness of the truth.” But no witness can be a witness to the truth whose testimony agrees not with the testimony of Scripture, that record of the dictates of the Holy Ghost. And we have seen what that testimony is, witnessing, both to the Christian minister and to his flock, that they are, indeed, to look to a Priest for salvation ; only that it must be to no earthly Priest, but to that great and true High Priest in heaven, who has no earthly successors. Let us, then, ever remember that we are to look to no Mediator but the gracious Mediator on high—that to bear our burden, both of guilt and sorrow, we have in Him a merciful and faithful High Priest who is touched with a feeling of our infirmities, having been in all points tempted like as we are, yet without sin ; who bore our griefs and carried our sorrows ; who offered up Himself as an all-sufficient atoning sacrifice, and who proclaims pardon, not as if sin were a light thing in God’s sight, but as purchased by His precious and “innocent blood ;” justifying and accepting, through His meritorious sufferings, His sincere and obedient followers : for “He is able to save them to the uttermost that come unto God by Him, seeing He ever liveth to make intercession for us.”

R. W.

SCENES IN HISPANIOLA.

IV. THE XIBARO'S PASS.

"WHAT is to be our course to-day, Señor?" said De Badajar to his host, as they watched the sun springing from his bed of gold and gems among the eastern clouds.

"I have been thinking that you will find entertainment by going up the Serico mountains. The prospects and the scenery, I am sure, will please you, and I am mistaken if we do not find some sport; but of what nature it is to be you must not ask me, for, as our friend the Padre would say, 'Happy are they who expect nothing, for they shall not be disappointed.'"

For about three-quarters of a mile they rode along a narrow path, which wound round the side of a mountain, rapidly ascending. It seemed to the stranger at first as if they were in the primitive forest, for they were environed on every side with trees of many diverse kinds; but the prevailing abundance of white starry blossoms, and the profuse, almost overpowering, fragrance which loaded the atmosphere, soon caused him to notice that nine-tenths of the trees were of one sort. It was the coffee-property of the Creole planter that they were traversing; the trees were in blossom, and myriads of humming-bees and other insects were paying their morning devotions to the scented flowers.

When they broke out from this sylvan scene where sight and smell were regaled, a strangely beautiful character of country appeared. A multitude of rounded hills rose singly from the plain, which, however, possessed a considerable elevation: they were separated by tortuous valleys, in which were numerous ponds running in chains, the only resource for

the cattle of the district, as no springs or streams occurred in this vicinity. These were now nearly dry, being exhausted by the protracted drought, for the water which they had contained was merely the accumulation of the rainy season. The valleys and the hill-sides were principally devoted to pasture, though the rich verdure of many negro-gardens, the waving flag-like leaves of the plantain and banana, and various fruit-trees, over whose branches the tendrils of the yam and many sorts of pulse were wildly twining, agreeably varied the slopes. Every summit was crowned with a thick clump of bamboo, expanding its plumose tufts of deepest verdure against the brilliant sky.

The road which the travellers were pursuing led along in a winding manner, nearly horizontally, half-way up the sides of the hills, revealing ever-changing panoramas, as they continually altered their point of observation. Glimpses of smiling valley-scenery were ever and anon opening between the conical hills, with occasional views of the distant forest; while the hills themselves, so regular in form that they seemed cast up by art, yet so wildly placed, half in the glowing sunlight, half in deep shadow, constantly shifting their relative positions as the travellers pursued their tortuous path, produced a wonderfully striking, almost magical effect.

"Look out yonder, Don Carlos!" said the planter. "Don't you call that a pretty sight? That is the sugar-estate of Majaguos, the property of my thriving young friend, Señor Castaña. They are carrying the *caña*."

It was, indeed, a pleasant scene, and the winding of their hilly road momentarily revealed it more and more. Broad fields of sugar-cane lay spread beneath them as in a map, some young or half-grown, of an emerald green, but the largest portion of a mature yellow hue, over which a hoary, silvery light was playing, as the breeze waved the feathery tufts of blossom, with which each noble plant was crowned.

Groups of negroes were moving here and there, looking rather like ants than men from the elevation of the observers, some cutting the cane, others loading it, while long teams of oxen were dragging piles of the golden reeds to the cone-topped mill-house. The boiling-house, with many adjunct offices, and the mansion of the planter, pleasantly situated on a rising slope, with noble trees overshadowing it, and a sheet of glistening water in its front, gave a lively animation to the prospect, heightened in effect by the voices of the waggoners, the shouts of merriment arising from the labourers, and the rattle of the mill-wheel, which came up to the ear softened and mellowed, yet distinct in the clear air.

The country, however, soon changed its character, gradually becoming wilder, and the soft rounded hills giving place to broken, stony forest-ground, with abrupt peaks of massive rock rising in angular majesty among the trees. At length a steep path opened into a rocky valley, through which a stream was pouring,—a torrent, though of diminished volume, for the declivity was rapid. The scene was wild, but it every moment increased in savage sublimity. The sides of the valley approached as the travellers advanced, until the passage was narrowed to a gorge, and from steep slopes clothed with wood, became beetling precipices. A narrow pathway afforded little more than foot-room for the horses, by the edge of the torrent, which in some places expanded into pools studded with rocky bamboo-covered islets, around which the water chafed and foamed and broke into myriads of sparkles; at other times the river-bed was a deep cleft in the rock, across which an agile man might have leaped, with the dark stream roaring far down in the bottom.

At length they arrived at a spot whose grandeur caused them to arrest their course for a while to admire it. A rude

bridge of logs was laid over the river-cleft, which was here deeper and narrower than they had yet seen it, for the pathway on this bank was brought to an abrupt termination by the cliff rising perpendicularly from the water's edge to a height of five hundred feet. It was one vast face of limestone rock, seamed with long diagonal veins, the crystals of which sparkled in the light, and split, especially near the summit, with multitudes of narrow fissures. Out of these sprang hundreds of palm-trees, all of one kind, a slender small species with fan-like leaves, that reared their stems against the very face of the stone, one over the other, the root of one apparently resting on the crown of its predecessor, until at the summit a grove of them was seen like a shaggy fringe against the sky. About midway up this precipitous wall a spout of clear water projected, and descended in an arching silver thread till the gusty breeze that blew up the gorge tore it away and dispersed it in a cloud of spray. At first it seemed as if the jet issued from the smooth and solid stone, but, on careful scrutiny, a horizontal line was visible stretching on either side, which indicated a narrow fissure there; and Señor Gomez assured his companion that after the seasonal rains had replenished the mountain-springs, this cascade appeared, not, as now, a slender thread, but a sheet of water upwards of a yard wide, projecting with such impetuosity that it reached the base of the opposite cliff, where they were standing.

On this side the boundary wall was somewhat less abrupt, and presently receded again to form a lofty and very steep hanging forest; the stony edge adorned with graceful ferns, and many brilliant blossoms of strange form springing from the split and moss-grown rock. The air, though hot, was humid; and the vapour, which perpetually arose like clouds of steam from the imprisoned torrent, as well as the spray carried by the wind from the cascade, clothed the

rugged pathway with a profuse verdure, and maintained, even during the dryest seasons, a succession of flowers that made the wild and gloomy gorge like a garden. There was one flower in particular that embellished this spot;—a very slender tree rising to a considerable height against the precipice, like one of those climbers that support themselves by clinging tendrils, though it was not of that kind, and conspicuous for its great oval leaves and its noble trumpet-shaped flowers, which were eight inches in length, and of the purest white. These large blossoms depended in abundance in their snowy purity; and into their recesses beautiful Guainumbas, or Humming-birds, were every moment penetrating to rob the nectar at their bases: the tiny birds completely concealed for a while in the capacious flowers, and then emerging to display their starry frontlets and gorgets, which threw back the rays of the sun with the splendour of the topaz and the ruby.

“I am glad you like the Rio Veloz,” said Gomez, in reply to his friend’s expression of delight and admiration: “it is a romantic glen. Even I, who am but a poor, uneducated Creole, and who have passed through it many times, never see it without pausing to admire it afresh. The valley we sometimes call the Glen of the Gallinazos, for a reason which I will explain to you by and by, when we see it again from another point of view. It extends for several miles upwards, but we must now leave it, and climb this steep track through the woods, which will bring us to the Xibaro’s Pass, and you will have need of your nerves, I assure you.”

Upward struggled the panting beasts, slowly but surely, through the woodland path, which wound to and fro to diminish the steepness of the ascent, and was occasionally cut by blasting and scarping the rock into steps, like flights of stairs, when the travellers were fain to alight and share

the toil with their steeds. At length a loud barking from the vagrant cur that attended their ramblings was heard among the trees, accompanied by a harsh squealing as of a hog in distress.

"Ha!" said Gomez; "unless I am mistaken in my guessing, here is something worth looking at. Alight, Don Carlos, and we will go and see."

The spot was quickly reached, and there they beheld the dog furiously baying at the foot of a tree, from the bending summit of which was hanging by one hind-leg a stout porker, whose sharp erect ears and grizzled black hair showed him to be a true forest swine.

"'Tis as I thought," said the planter, laughing; "one of the Padre's proverbs compares some impossibility or other to a pig climbing a tree and singing a psalm; but our eyes behold that he has done the one, and do not our ears hear 'the black psalm,' Don Carlos?"

"But, seriously, Gomez, what is this? Who has suspended the creature there? and what for?"

"I will tell you. These upland forests are full of wild swine, *jabali*, as we call them; and there are many persons, chiefly of half-blood, who get a living by the sale of the pork at the coasts and in the towns. Perhaps I may give you another glimpse of this matter presently, but meanwhile this is one method of obtaining bacon. This elastic young sapling was bent down by main force, and secured by a forked peg driven into the ground, with just sufficient strength to hold it while untouched. A noose made of this tough *bejuco*, that twines from tree to tree, was then fastened to the sapling, and spread open on the ground, where, as you see, fruits and eatable roots are strewn. The result is before us; the eager hog catches his hind-foot in the noose, gives a tug, frees the sapling, and is in an instant whisked aloft, where he is certainly in worse case than even

our clerical friend was when treed by the cocodrillo. Well, we must leave his ugliness to his sylvan song and pursue our way. (Here, Mimo ! Mimo ! come away, pup !) We are not far now from the Xibaro's Pass."

The forest track had for some time lain along the side of a peculiarly steep mountain, rising on the one hand to a height which was lost among the tall trees, and on the other descending with equal abruptness. The steepness increased until no trees could grow, except the huge gnarled *cahobo*, or mahogany, which sprang from the riven rock, and tossed its twisted arms in the air, or the numerous withes and creepers, which half concealed the nakedness of the precipice with their elegant festoons, and drooping strings and chains of foliage.

Even these disappeared, and the travellers found themselves on a narrow ledge, such as the eagle delights to soar to, with the craggy limestone standing like a wall on their right, and on their left, nothing but half an ell of stony path between their horses' feet and a chasm of awful depth.

It was the same gorge up which they had travelled an hour before ; the same beetling precipices, but still closer together, and the same darkling stream far below,—too far, indeed, for even the sound of its roar to reach the ears of the travellers. The bottom of the chasm seemed from their point of view to be shrouded in total darkness, for at the height of several hundred feet, where they stood, the opposite cliff was so near that they could see the glancing of the eye of the obscene bird of prey that sat upon the rocky ledge.

"To your feet again, Don Carlos !" said Gomez, as he himself sprang from the saddle, "for this is the Xibaro's Pass ; and horse and man must here shift each for himself."

Just before them the ledge on which they were standing, already so narrow as scarcely to be safe, dwindled to a mere

shelf ; and at one point, where the cliff jutted out in a prominent angle, it seemed as if it altogether vanished, so minute was the interruption of the almost absolutely perpendicular line, that reached from the sky above to the unseen depths below.

“I will not ask a Spanish hidalgo if he dares to essay a path of danger. It is enough that I will go first.”

“Señor Gomez, I am under your guidance, and though my feet are less used than yours to such ground as this, yet I am not wholly without experience in mountain-travelling ; and where you lead I will follow.”

“The naked foot is more trustworthy than when shod : the smoothness of the rock, and not its roughness, is what we have most to dread. Off with your shoes, Don Carlos.”

The shoes were tied together, and slung over the back of one of the horses, when the planter, giving his companion the reins of both to hold, stepped onwards a few yards, and began to imitate the grunting of a hog. In a few seconds a wolf-like animal appeared on the slender shelf around the jutting bluff, and, seeing the party, stopped short. The planter raised a loud shout, when the wild dog, for such it was, *backing on his course*, disappeared.

“Translate me this pantomime, my good friend,” said the Spaniard, as the planter returned.

“I will explain,” said he, “as we go along ; for the less we think about ourselves the better.”

So saying, he retired with the Don behind the horses, and giving them a word of encouragement, the docile and intelligent beasts proceeded. The shelf in the worst part was but just wide enough to allow them to lift their hoofs and place them one before the other ; but the wall of cliff, though it appeared nearly perpendicular, was not so truly so, but that there was room for the bodies of the horses even to lean slightly inward ; and this advantage they availed themselves

of. They walked not very slowly, but very steadily, with their noses close to the ground, and soon were round the bluff, where the shelf presently widened.

The planter and his guest followed at a little distance, with the like circumspection, the former beguiling his companion's attention by the promised explanation. Meanwhile the gorge below seemed filled with those disgusting birds of prey, the *Gallinazos*, or Black Vultures, which crowded up on broad sooty pinions, fanning the travellers as they flapped heavily by, or resting by scores on the ledges and jutting points on both sides of the chasm.

“The dog you saw at the angle yonder was a Xibaro ; there are many of them lurking in these woods. Some say they are truly natives of the country, others think they are descended from such dogs as the first settlers introduced. Be that as it may, they are thoroughly wild and independent now, and, though the veriest cowards, are fierce and blood-thirsty as cowards often are. They live chiefly on the *jabali*, the *utia*, and the wild *pintado*, which they hunt down in packs. They have had the sagacity to turn this narrow ledge to account, in a curious manner. One or more may always be met with lurking about here, watching for any stray hog in the neighbourhood. When those who are prowling in the wood behind us scent a hog, they close on his trail, and endeavour to drive him towards the ledge ; if they succeed in this, which, unless the hog is a determined old boar, they are almost sure to do, it is all up with him. They press him from behind, giving utterance to a sharp wild cry, which conveys intelligence to another Xibaro, stationed on the watch just beyond the angle. He is at once on the alert, and when he judges by the approaching grunt, that the prey is at the narrowest part, he suddenly dashes round with a cry, and the pretty certain result is, that the poor startled

jabali tumbles down the gorge, whither his pursuers repair at full speed, by the path up which we came, to feast upon his mangled carcass.

“It was the watching Xibaro which I enticed to show himself, well knowing that he would clear the ground as soon as he saw his visitors ; for I feared that the horses might be startled if they had come suddenly upon him.”

“But how was it that the animal showed himself at your imitation of the hog’s grunt, instead of lying quiet in ambush ?”

“It is only when he hears the cry of the pack behind, that he practises this stratagem. If a hog unpursued approaches, he at once sallies upon him, hunting him down by open force, if he be not too formidable.

“But now here we are safely landed, and I congratulate you on your coolness and steadiness. Look at the poor beasts ; they are completely bathed in sweat, from the excitement of the pass. We must not mount just yet, but walk gently on to yonder bend, whence we shall be able to see the bottom of this precipice.”

The proposed resting-place was soon reached, and the Spaniard, peering down into the obscurity of the chasm, could discern a heap of bones, whitening in ghastly brightness at the foot of the cliff just beneath the narrow shelf, over which the foul vultures that had risen up to reconnoitre the travellers, were hovering and settling by hundreds.

“And now you see why we call this gorge the Glen of the Gallinazos ; for these birds are well aware of the Xibaro’s mode of warfare, and, possessing readier means than they of reaching the bottom, manage to come in for the first slice of the meat ; often, indeed, leaving little except bones for the disappointed dogs.

“But I will tell you of a sad affair that once happened

here, Don Carlos ; which I would not allude to till after we had crossed the pass. I have seen other bones than those of hogs at the foot of yonder cliff.

“ I was returning one day about this season, some seven years ago, from a *conaco*, or provision-farm, which I had at that time on the other side of these mountains, when I overtook a man, whom I slightly knew as a distant neighbour, and also as a dissolute hot-headed fellow. He had been at a hog-hunt, and was not a little the worse for liquor. As we approached the Xibaro's Pass, nothing would do but that he must needs prove to me his courage, by riding his horse along the shelf. Expostulations but made him the more headstrong, and all I could do was to watch in fear for the consequences.

“ The poor beast knew and felt the peril, and refused to go ; but urged by whip and spur, and curses to boot, he at length set off, trembling in every limb. In the very narrowest part, whether the horse stumbled I know not, but I saw the rider check the rein, and in an instant horse and man fell backwards into the tremendous abyss. Shocked, and scarce knowing what I did, or why, I made my way across, and rode at the utmost speed I could attain to the foot of the mountain, and up the gorge ; but, before I arrived at the spot, the carcasses were almost entirely devoured by the horrible birds which you see.”

Φ

THE CROATIAN ANCESTOR.

A TALE OF SUABIAN LIFE.

[In former volumes we have given some sketches of Würtemberg, the most primitive and interesting region of modern Germany. Through the kindness of a correspondent we are enabled to give our readers a specimen of the incidents to which it was liable when the surges of war swept through its forest seclusions. It is translated from Wildermuth, who, along with Auerbach, is the most popular of Suabian story-tellers.]

IN my father's family a certain picture had been preserved, which to us children was a never-failing source of secret dread, mingled with respectful admiration. In truth, it contrasted strangely with the tame pictures of "papa and mamma" which hung by its side. It represented a warrior of the time of the Thirty Years' War, clad in the grotesque costume of the Croats. Beneath the broad-brimmed, slouching hat, there gleamed forth a pair of fiery eyes, which wore a defiant yet true-hearted expression; a sun-burnt countenance, adorned with a tremendous moustache, harmonised well with the foreign military attire. This portrait was always designated as "The Croatian Ancestor," and even the servants seemed to gaze upon it with a certain degree of awe.

It was long before we children knew anything of the history of this Croatian ancestor. One day, however, Christian came back from school, crying bitterly, and exclaiming, "Mamma, I have had a quarrel with Gottlieb, the joiner's son, because he said, it was no wonder we were so wild, for our great-great-grandfather was a Croatian and a cannibal, and half a savage into the bargain."

Our mother did not seem to take this insult very much

to heart, and Christian's tears were soon dried, when she replied with a smile, "Thy great-great-grandfather was certainly a Croatian captain, but by no means a cannibal; he died here a good evangelical Christian in his own fair domain—which retains to this day the name of Croatian. Now call Fritz, and Henry, and Conrad, and thy three eldest sisters—the little ones do not need to know anything about it—and I will relate to you the history of your Croatian ancestor."

The auditory was quickly assembled, full of curiosity to hear the long-desired explanation, which the mother imparted to them in the following terms.

"You have already heard, children, from your father and from the schoolmaster, how much our town suffered during the time of the Thirty Years' War. Although we had a good magistracy, who knew well how to plead in our favour with the commanders of the invading force, yet could they procure us no remission of the system of quartering the foreign troops in our houses: the wild bands who at that time served in the Imperial army rendered life and property insecure, and, in addition to this, necessaries of life were fearfully dear.

"The ruling burgomaster at that time was Herr Brenner; he had an only daughter, Magdalene, the fairest maiden in the whole town. She was, moreover, a high-spirited, clever girl, and a great favourite with the pastor, who had taught her from her childhood, and delighted in her precocious knowledge of Holy Scripture. Her complexion, it is said, was fair and delicate, and her clear blue eyes shed their mild lustre on all around.

"Magdalene, though very good and discreet, was, nevertheless, a bold, fearless maiden. One day it was rumoured in the town that a Croatian regiment was approaching, and would be quartered upon the inhabitants. On hearing this

most of the citizens shut up their wives and daughters in the cellars, so that no ill might befall them from the wild soldiery. But Magdalene would not allow this to be done in her case: she had no idea of being shut up like a pet animal; she would see with her own eyes how it fared with her father: and so it was that she remained in the house.

“A captain and two privates were quartered upon the burgomaster, and behaved in a very orderly manner. The captain was a handsome, stately man, somewhat wild in his aspect, and wearing a formidable beard. From the first moment he entered the house, his eyes were constantly fixed on Magdalene. As soon as she perceived this, she withdrew herself from his presence as much as possible, and, when in his company, gave him very short answers. When, however, two or three days after his arrival, she learnt from her father’s serving-lad that one of the soldiers had transgressed military law and was to undergo severe punishment for his fault, she took courage, pleaded for him with the captain in moving terms, and obtained a ready remission of his punishment.

“On the evening of the fourth day, being that which preceded the departure of the troop, the captain spoke to Magdalene, and asked her whether she would go hence with him and be his wife? He was now on the point of returning home; he belonged to a good family, and possessed in his own country a considerable estate. Magdalene replied, in brief terms, that she had no wish to forsake her fatherland, and that she would never marry a Croatian and a Catholic. The Croat was not one accustomed to waste his time in persuasive words; when he found his offer was despised, he struck his heavy sword in hasty anger on the ground, and spake not one word more.

“Next morning early the Croatians were to take their departure. Silently, and without bidding farewell to a soul

in the house, the captain mounted his horse and rode to the square where the troops were assembled. In another quarter of an hour the Croatians were galloping through the streets at a brisk pace, whilst the citizens watched their departure with secret satisfaction. Wherefore I cannot tell, but so it was, that Magdalene Brenner took it into her head she must see the Croatians ride off. When the captain's troop passed by, the burgomaster's door stood open, and within, on the lowermost step of the stairs, a young maiden might be descried gazing on the passing scene. Already, from afar, the captain's eye had been directed towards the house, and when he saw Magdalene at the door, he sprung swift as lightning from his steed, seized her by the hand, and sought to draw her away with him. Magdalene resisted, and, in order to maintain her ground more firmly, threw her arm around the large wooden knob of the balustrade. The captain, swift as a whirlwind, tore his sword from its sheath, severed the knob from the balustrade without hurting the maiden in the least, lifted her and the knob together in his arms, as he would have done to a baby, and, springing on his horse, galloped at a furious pace after his comrades. The balustrade from which the knob was severed is still to be seen in the house which is now inhabited by Zoller the dyer. The burgomaster was looking out of the window, and cried in a lamentable voice after his child, as he saw her thus borne from his door. A crowd of people were assembled in the streets and at the open windows, and of course there was no end of screaming, shouting, and running, upon this memorable occasion. The good citizens wished to give chase—but how to do it was the question? To ride after the Croatians would have been no easy matter, for they had taken all the good horses with them, and left their own worn-out steeds behind in their place. Every one who had a leg to stand on ran after them and gazed upon the clouds

of dust raised by the hoofs of the retreating charger, till even this was no longer to be seen ; and then they returned home, and knew not what was next to be done. But the poor burgomaster was well-nigh broken-hearted ; he soon resigned his situation, and wandered about like a mere shadow of his former self.

“As for poor Magdalene herself—hitherto her father’s darling, the idol of her native town—now alone amidst a troop of Croats, galloping on a wild horse through thick and thin, we can scarcely form to ourselves too vivid a picture of her misery. This much, however, we know (for she in later days mentioned the circumstance to her friends), her wretchedness was so great that the captain was moved to pity, and deeply repented his hasty deed. He treated her with all honour, as though she had been his own sister, shielded her from harm as carefully as the apple of his eye, and made her as comfortable as he could. To bring her back to her home was impossible, nor, perchance, was he very anxious to do so, so he carried her safely into Croatia. There she in due time consented to become his wife, and as he had a kind heart, and Magdalene was dear to him beyond expression, she led with him a peaceful life, although at first her heart well-nigh broke with longing after her native land amidst a strange people with a strange faith. All around her were Roman Catholics, and it was only in secret that she ventured to read the Bible and hymn-book which she had found amongst her husband’s military booty.

“It often seemed to her as though her husband became each day more gentle and affectionate, and she, ere long, learned to love him with her whole heart. She perceived that he often stole quietly and alone into the little room in which she was wont to perform her devotions. Once she gently followed him, and found him reading in her Bible, whilst the tears flowed down his rough cheeks. When he

heard his wife's step, he raised his head, which was bowed down over the sacred volume, gazed upon her with friendly, trustful glance, and said, 'Magdalene, I believe that this book tells us the right way.'

"Then he related to her, to her heartfelt joy, how he had once looked into her Bible by chance, and had ever since then become a diligent reader of the Holy Book; how from it he had learnt to pray better than from his rosary; and how it was now his heart's desire henceforth to serve God after her fashion. With tears of joy did Magdalene now thank God for having permitted her to fall into the hands of the wild Croat, that she might become the means of leading him to Him, and thus finding in him a faithful, loving, and believing husband.

"The captain was not long in discovering that he could not profess the new faith and dwell with comfort in the old country, so that Magdalene found it no difficult matter to persuade him to return with her to her own beloved land.

"This befell about ten years after she had been carried off by the Croatians. You can imagine how the people stared when they heard that Magdalene Brenner had returned with the Croatian captain. They ran hither and thither nearly as fast, and talked almost as much, as the day she was carried away. She must at that time have been still a very handsome woman, and it is a pity that no portrait of her has descended to us. The old burgomaster was still living, but he well-nigh died of joy when he saw his only child return to him safe and sound, nor had he the slightest objection to hear her entitled *Frau Hauptmännin*, the captain's lady.

"The Croat had brought with him considerable wealth to his adopted land. Money was at that time very scarce in the country, whilst, on the other hand, land was to be had for little or nothing, the only drawback being that almost

all the country-houses had been burnt, and the surrounding properties laid waste. Magdalene's husband purchased the handsome domain which lies just outside the town on the road to B——, and he built on it a comfortable dwelling-house. In this home the Croatian and his wife spent many years of peace and happiness. The aged burgomaster also took up his abode under their roof.

"The captain lived as a quiet and God-fearing man, and was a diligent attendant at church; but the people always retained a certain awe of him, and constantly maintained that, when of an evening he walked about his fields, he was wont to make strange signs in the air, by means of which he could dispel the storm. No more formidable crime than this was ever laid to his charge, and he was kind to all around; mayhap, however, he did not feel quite at home in his new country, for he often seemed sad and homesick, like one who was yearning for his fatherland. He was very fond of children, and they quickly lost their fear of his formidable beard.

"His only son, who was born after he came to reside here, was father to your great-grandfather. It does not appear, however, that the Croatian left any soldier's blood flowing in his descendants' veins, for we have never since then had a single soldier in our family. Alongside of his picture you can see our family arms, which had their origin from him:—the flaming star on the shield he adopted in honour of his wife, not only on account of her name, *Brenner*,* but also to signify that she had been to him as the Star of Bethlehem, and had guided him to his Saviour.

"And this is the true history of our ancestor the Croatian, who is so veraciously reported to have been a *savage* and a *cannibal*!"

* Brennen in German signifies "to burn."

NOTES ON NORWAY.

No. II.

OUR NORWEGIAN KINSFOLK. THE ISLE OF SCARTS. WATER GIPSIES. LODBROG. THE SOGNE FJORD, WITH ITS SNOW-MOUNTAINS AND CASCADES.

ON our first Sunday we had a good opportunity of witnessing the holiday costumes of this part of the country, the peasantry of course coming into town from considerable distances. The men are attired much as in England and France. The women pride themselves on their head-dresses. Even the poorest of them have their hair beautifully brushed and tied in a tasteful knot behind, generally with a neat little gauze cap just covering the knotted hair, below which gracefully escape the ends of the bright ribbon in which they delight. The dark-haired women seemed to prefer binding their long queues of hair closely round with scarlet tape, and then passing the scarlet ropes so formed in a double band over the crown of the head. This bright head-gear formed a by no means ungraceful set-off to their beautiful dark hair. The peasant women from the Hardanger district wore a tastefully embroidered corslet.

The people are generally plain, though with the pleasant expression of countenance which kindly dispositions secure. And all our after-experience confirmed our impressions of Norwegian benevolence and good-nature.

We were struck with the resemblance of the people to the Scotch in feature and complexion, and in a certain downright simplicity and cordiality. They have a strong love for Scotland and sympathy with it. Their language, too, has an amusing resemblance to the true Lowland Doric :

you can hardly hear them utter a single sentence without recognising words similar, if not identical; giving confirmation, by the by, to the fact upon which the North Briton delights to expatiate, that his national language is not a corruption of English, but is of earlier date, and derived directly from the grand old Teuton stock. You are thus reminded at every turn that the Hebrides, and much of the North and East of Scotland, were peopled by the adventurous bands of Norsemen who were once the terror and admiration of all Europe. It is impossible to doubt that much of the spring and energy of Scottish character are due to this liberal infusion of Norwegian blood. The same remark applies in some measure to England, which, through the Norman Conquest, drew into its borders, though at second-hand, large importations of Scandinavian life, character, and usages. It is to be regretted that countries allied to one another in origin and faith like Britain and Norway, are not bound to one another by the tie of a closer and more frequent communication. We owe much of what is great and good in England to Norway; it would not be more than fair if we were to repay to her some of the profits we have acquired by trading for centuries upon her capital.

Bergen is a good point for the tourist to make on first reaching Norway. Though it contains a population of only about 26,000 souls, it is the second town in the country; and it is certainly more characteristically Norwegian than Christiania. After Christiania was destroyed by fire about a hundred years ago, it was rebuilt entirely of stone, and is much like a handsome town transplanted from some other country in Europe. Bergen is built entirely of wood; its houses are gaily whitewashed, and present a large surface of window to the street, there being no window-tax in that country, where light in winter is so precious that they do well to admit it by every available avenue. The streets

are narrow. The town lies round the head of the Fjord, with its goodly array of stately warehouses projecting over the water and supported on piles, while the boats nestle beneath their beams. During our stay the heavens were most propitious, which the tourist must not always expect, as it is reckoned one of the most rainy spots in the kingdom. No less than seventy-three inches of rain fall annually in Bergen.* Its average temperature is stated at 46° Fahr.

Monday was spent chiefly in making the necessary preparations for our northern cruise. We procured a large quantity of small money, which can only be obtained in the large towns. We purchased a light Norsk skiff, with four oars, for the very moderate sum of 24s., and indeed we found that boats may be procured for considerably less. Most essential of all, we engaged a pilot. The heat of the day was overpowering. The sun was unclouded, and was reflected with scorching effect by the houses, which are painted with white oil-paint, and washed for the most part every week. We were glad, therefore, of the luxury of a bath, to enjoy which we rowed into the middle of the Fjord. Such is the influence of the sun that we found the temperature of the water to be 64° Fahr., though it was exceedingly cold when we bathed on our first arrival on Saturday evening, the sky having been somewhat covered during that day. It may be here mentioned that, by several trials in the middle of the North Sea, we found the temperature of its surface water to be 54° .

We got on board early in the afternoon, but had here our first experience, afterwards amply confirmed, of the difficulty of getting Norwegians, especially Norwegian pilots, to stir from their homes on short notice. As we tacked backwards and forwards waiting for our pilot, we had opportunity for a farewell view of Bergen. About six o'clock

* "Norway and its Glaciers," by Professor J. Forbes, p. 111.

he joined us. He was a man of strong build and pleasant countenance: his name was Laasen. He was well acquainted with the whole coast between Bergen and the North Cape. With a gentle breeze, which decreased as the evening advanced, we glided down the Fjord; leaving it however this time, not by the passage through which we had entered, but by one conducting us northward.

Our progress was not rapid, but the evening was glorious, and we sat on deck reading "Feats on the Fjord,"—Miss Martineau's graphic tale, as between nine and ten o'clock, with slow and slanting course, the sun sought the horizon. Soon after sunset we had worship on deck, the men joining us as the wind had almost died away. The echoes of our song of praise were sweet as they floated back from the rocks over the quiet fjord. Midnight found us still grouped on deck, reading and working by ample daylight; and watching the glorious twilight which lasts during the brief hours of the sun's dip below the horizon, with endless and beautiful varieties of tint, we were riveted to the deck till the sun had once more risen. There is a witchery about the northern nights to whose fascination we all surrendered. And I may remark that we felt it more in this lower latitude than farther north, not only because the sensation was novel, but chiefly because the beauties of sunset and sunrise were prolonged through four or five continuous hours. The charm was perfect at midnight, when the light was just enough subdued to be soft and mysterious, with a fine glow from the north slanting over the sea and enriching the sky. Farther north the daylight at midnight was too broad and unchanged to carry with it the same intensity of interest. If we dwell on this point it is just because the nightly recurrence of the long rich twilight, changing the wild rocky islands into an enchanted land, is, perhaps, the feature of a tour in these parts which, more than any other, will give its

tone to the enjoyment and the remembrance. At this period, also, the warmth was most genial. During the night the minimum temperature was 67° ; it began again to rise between two and three in the morning, at three o'clock standing at 68° . The temperature of the previous day was 77° in the shade.

The sun was high in the heavens when we sat down around the breakfast-table, spread on deck on Tuesday forenoon. We had been compelled, by the complete failure of the wind, to cast anchor in a narrow sound. Springing into our little skiff, which was lighter and more suitable for such brief expeditions than our English boat, a party of us pulled for one of the wild rocky islands near us, where we landed, startling large flocks of screaming sea-birds by the unwonted intrusion. We were struck with the beauty of the butterflies, some of which we preserved. We also secured a beautiful gull of an unusual species. There was a great charm in these unpremeditated excursions, to which the occurrence of a calm always gave rise. Many a beautiful spot were we thus led to explore, and many a deep solitude to invade, the very waywardness of the breezes giving a zest and interest to the expeditions organized in the uncertain pauses which they allowed us. It would often happen that when engaged in some interesting exploration, or in pursuit of some tempting game, a sudden ripple would run along the glassy fjord, the flapping sails of the "Midnight Sun" would fill, and, hurrying down to our skiff, it would take a hard pull to bring us up with her. The breeze, when it did spring up at such times, was of course too precious to be lost. Hurried on board on this occasion by such a sudden summons, we beat up a succession of narrow sounds between island and mainland, having occasionally a fine view of the snowy mountains in the direction of the Hardanger.

About eleven o'clock at night we took to our boats, and

landed on a bare island of singular appearance, traversed by deep fissures, with precipitous faces of rock. The island was the haunt of hundreds of "scarts." We gathered a number of eggs. The full moon stood in the heavens, round and large. Though we needed not her light, there was a calm majesty in her full silvery orb that was in perfect harmony with the glorious solitude on which we looked down. On every hand stretched league upon league of rocky islands, barren and uninhabited, with long arms of the sea gleaming amongst them in the golden glow from the sunken sun, or the silvery shimmer from the risen moon. No sound was heard but the deep still pulse of the ocean, as it throbbed in the caves or rocky inlets of our island, and occasionally the wild scream of the startled scarts, as they sped on low and rapid wing to some neighbouring islet. Description fails to convey any adequate idea of these strange and mystic moments; and yet it is in that indescribable something which broods over the whole, and stamps its impress indelibly on the heart and memory, rather than in the solid and palpable features of the scene, that the deep charm of such midnight excursions amid the profound solitudes of the Northern Sea is to be found.

By half-past eight in the morning we were again under way, beating up against a northerly wind, and for some time without the usual shelter of islands. Our purpose had been to continue our course northward, but the adverse wind determined us in the first place to sail up the Sogne Fjord, whose mouth we had now reached. We accordingly sought the shelter of an island with a convenient cove, frequented by a few fishermen, that we might procure a pilot. Laasen, though familiar with the regular course from Bergen northward, was unacquainted with the Sogne and other fjords, so that when we wished to explore any of these it became necessary to procure a local pilot. In truth, when the

intricate character of the navigation among countless islands of all sizes and forms is considered, the wonder rather is how any single man should be able to pilot a vessel for hundreds of miles along such a coast. While lying at anchor here, we were visited by a boat containing a family who were effecting a "flitting" with their worldly all. The party consisted of a fisherman with his wife and four children, and their pig. Mouldy bread and mouldy cheese lay in the bottom of the boat, with a barrel or two of provisions, a blanket being spread tent-wise over the hinder part of the boat, in which the matron and the pig were ensconced. The party had very much the air of a family of gipsies afloat. They had the appearance of poverty, and expressed much gratitude for some biscuits, &c. which we gave them. Finding that they were able to read—as who even in the remotest solitudes of Norway cannot?—we gave them a few tracts, and so they left us with that air of contentment and kindness which seems to sweeten the hardest lot among these Northmen.

A boatful of fishermen now came alongside us, and finding that we were bent on exploring the Sogne Fjord, which we could not do without their pilotage, they were disposed to drive a hard bargain with us, more than once making a feint to leave us in the lurch by rowing away from us, expecting to be summoned back and to secure their own terms. Finding that this did not succeed, they returned, and eventually we engaged one of them for the service we wished, for three and a half specie dollars, less than the half of what they at first demanded. Our new pilot's name was Ulle Sievesen. He belonged to the hamlet of Viig, a considerable way up the Fjord. He was at present on a fishing expedition. Ulle was a tallish man of very wild appearance, dressed in trousers and coat of leather. His dark hair, thick and matted, curled naturally, but was evidently unmolested by the intrusion of a comb. It must be owned, too, that a

general greasiness pervaded the person of our "Lodbrog." Springing on board, this untamed fisherman might have been mistaken for a savage chief as he seized the helm and stood before it with an air of proud authority, his legs stretched wide apart, and firmly planted. Repulsive as was the first appearance of Ulle, he soon became a great favourite with us all. He was remarkably intelligent after his wild fashion, and endowed with singular amiability and even softness of character. He spoke with distinct and slow articulation to meet the requirements of our imperfect Norsk, with a painstaking accuracy and success that we did not find to the same extent in any of the more cultivated allies of our cruise. Ulle was a thorough child of nature, impulsive and wayward, yet for the most part gentle as a lamb—though a lamb that might easily be roused into a lion. He was evidently proud of his position as pilot of the "Midnight Sun," and much pleased to be able, by means of his minute local knowledge, to satisfy our inquiries in reference to the places we passed.

The breeze was fresh, but in our favour, and we scudded bravely up the Fjord; as the cleft waves curled and splashed before our prow showers of spray came dashing over us, so that we had to abandon books and work. Enveloping ourselves in our macintoshes, we retired to the weather side of the deck, for the lee-side dipped into the waves, and enjoyed the glorious exhilaration of the whistling breeze and the dancing waves, with the magnificent scenery which began to open upon us. The Fjord might be five or six miles wide towards the mouth, but gradually narrowed to half that width as we sailed up. The Sogne Fjord stretches inland to a distance of 110 miles, a great number of subordinate fjords branching out from it in all directions over that district, like the fingers of a giant hand. One or two of its articulations stretch right up to the base of the Justedal's

Braeen, a vast range which includes the loftiest mountains in Norway. It will not, therefore, be matter of surprise that the scenes we passed were of a very varied and magnificent character.

The hills on either side of the Fjord were generally wooded, but in some places were so rocky and precipitous as to admit no trace of vegetation. Snow lay in large masses on their summits, and descended to within a few hundred feet of the sea-level in the most shady parts of the frequent ravines. The abundance of snow in these latitudes tends greatly to enhance the effect of the mountain scenery, and to give it an Alpine character. The general elevation of the mountains that skirt the Sogne Fjord may be about 2000 feet. The number of waterfalls is altogether astonishing to the newly-arrived traveller,—plunging down the dark mountain-sides with a dazzling whiteness that vies with that of the snow in which they have their origin, they add the element of life to the scene. Rapidly scudding before the wind, our attention and admiration were kept on the stretch all the afternoon, as each new turn revealed new beauties. We were scarcely sorry when our brisk fair wind began to die away, that we might have more leisure for the enjoyment of the glorious panorama.

At midnight we reached a large open basin where several branches of the Fjord unite. A magnificent waterfall of great height and very considerable body boiled down the precipitous side of the mountain before us, which was richly clad with “skrub” and other vegetation; while looking more to the left, the eye rested upon several dazzling snowy domes of the Justedal, a rugged and broken glacier filling up one of the ravines.

The wind having become light, we resolved on an expedition to the waterfall. Accordingly, taking Ulle with us, and William our steward, an active, obliging, and useful

young fellow, we started in our little coble about one in the morning. We soon found that we had been deceived as to the distance, having a much longer pull than we anticipated. When we were approaching the shore we found our little skiff suddenly plunged into a jabble of broken water, caused by the meeting of currents from two branches of the Fjord. The men pulled vigorously, however, and we were soon through it. When we did reach the foot of the waterfall, we found that landing would be impossible. There was no beach, the cliffs rising sheer out of deep water: and there was a considerable swell. We had to content ourselves, therefore, with gazing upon the foaming mass of water, and with inhaling the delicious odours of birch and other fragrant plants that covered the mountain. Such odours are never so delightful as when wafted in the cool of night from the bosky hill to the wanderer on the sea. Returning we had to pass through the cross-current again, but this time it was more difficult, as the wind was against us. Accordingly, the moment we touched the agitated water, a heavy wave broke over our bows, drenching those who sat there, and warning us not to proceed, as a few more such waves dashing into the little skiff, with six people in it, would have made a sudden and disastrous alteration in our circumstances. We immediately turned, altered the trim of the boat by throwing the weight more astern, baled out the water, and, creeping along-shore for some distance, reached a point where the agitation of the meeting current being less, we were able to pass in safety, and after a stiff row to spring on board the "Midnight Sun." After a supper of cabin-biscuit and lobster, which we had procured from a passing fishing-boat, we "turned in," but not until the sun had risen, shedding exquisite rose-tints on the snowy mountains around us.

R. H. L.

THE LEOPARD, OR PANTHER.

(*Leopardus varius.*)

MANY of the Cat tribe are handsome, none perhaps more so than that sleek species alluded to by the Poet of the Seasons,—

“ The lively shining leopard, speckled o’er
With many a spot, the beauty of the waste.”

Those who have seen the Leopard in his native haunts describe his motions as being in the highest degree easy and graceful, while the agility of the creature in bounding among the trees and rocks is quite amazing. In the necessarily narrow limits of a “den,” although almost always on the move, as little idea can be formed of the leopard’s activity when at large as of the “heaven-ward” motion of a skylark, from his fluttering in his cage in some crowded London alley. These spotted cats are in some respects more dangerous assailants than their larger and more powerful brethren, the lion and tiger. Neither the sable monarch of the desert, nor the striped tyrant of the jungle, can climb trees, so that some portion of their prey have a chance of escape—a retreat which is closed against the poor victim of the spotted leopards and jaguars of the old and new worlds, which mount trees with surprising facility. There is one of these which seems widely distributed over Africa and Asia, and which, though it differs in the markings somewhat in different localities, may yet be regarded as essentially a single species. By the Arabs of Syria, Arabia, and Nubia, this creature is called Nimr or el Nimr, which means *the spotted* or *varied*. There can be no doubt this is the Namer of the Jews, the Pardalis and Panthera of the ancients.

In the Bible the leopard is frequently alluded to, and it seems likely that Nimrod, "the mighty hunter before the Lord," derived the name by which he is still known in the East, from his fame in the pursuit of this fierce and beautiful wild beast. In that wonderful prophecy in the 11th chapter of Isaiah, it is said that "the leopard shall lie down with the kid." One of the judgments pronounced by the pen of Jeremiah against the Jews was that "a lion out of the forest shall slay them, and a wolf of the evenings shall spoil them, *a leopard* shall watch over their cities; every one that goeth out thence shall be torn in pieces," (v. 6). The same prophet asks, "Can the leopard change his spots?" (xiii. 23),—a passage in connexion with which it may be mentioned that even in the negro variety of the leopard the spots are constantly darker, or at all events can be always seen in a strong light. One of the "four great beasts" seen in the dream and visions of Daniel was "like a leopard," (vii. 6). In the prophets Hosea and Habakkuk the leopard is also alluded to, and in the last of the prophets, the vision of St. John on Patmos, the beast which rises up out of the sea "was like unto a leopard," (Rev. xiii. 2). Solomon sings, "Come with me from Lebanon; look from the top of Amana, from the top of Shenir and Hermon—from the mountains of the leopards," (iv. 8). Just as Lebanon was famed in the days of the wisest of men, so is it now. Burekhardt tells us that the mountains of the Heish, a part of the Lebanon range, abound in these creatures, and that their skins are much sought after by the Arab Sheikhs as saddle-cloths. In the East, at the present day, we find several localities named after this beast. De Sauley mentions one of the valleys near the Dead Sea as deriving its name from the leopard, the "Ouad en Nemrieh;" and Burekhardt, during his Sinaitic journey, came to a group of hills called "Roweysat

Nimr," *i.e.* the little heads of the leopard. So in Bible times and Bible lands we find places mentioned which acquired their names from having been the resort of this animal. "Nimrah," "Beth-nimrah," and the "Waters of Nimrim," are names which occur more than once in the Old Testament. The leopard is still far from extinct in Syria and the Holy Land. The Americans, who call their puma "a lion," and the jaguar "a tiger," apply the latter name to the leopard; and it is to its tracks that Lynch alludes in his Narrative of the United States Expedition to the Jordan and the Dead Sea. On the banks of the river Jordan he saw its fresh foot-prints on the low clayey margin, where it had come to drink (p. 128). De Sauley says that "his party came on a dead camel, from which, as they approached, several vultures flew off, whilst a magnificent leopard, or panther, who had been feasting along with them, walked quietly off, doubtless not much pleased to be interrupted when at breakfast. 'Nemr! Nemr!' shout all our Arabs, whilst two or three dart off in pursuit of the animal, who appears to take things very coolly. The beast looks as if she was creeping rather than running, and when the horse-men are close upon her, evades them with an enormous spring, and then creeps on again as quietly as before. She repeats this cat-like practice several times, and quietly disappears in the thicket." This traveller mentions that wherever the wild boar is seen rioting, there the Nimr may generally be expected, as he finds an ample and excellent repast in the carcasses of these portly Pachyderms.

The leopard has the habit of scratching the trunks of trees, an action common to most of the species of the feline race, and which may be daily witnessed in houses where cats, not having been corrected in their kittenhood, have been allowed to scratch the legs of chairs and tables. The traveller may often judge of the presence of a leopard in his

neighbourhood by finding these incisions to be freshly made. Mr. Darwin was shown, on the banks of the Uruguay, in South America, certain trees selected by the jaguar for this purpose; the bark on these was worn smooth, and on each side there were deep scratches, or grooves, nearly a yard in length. The natives say that in this way these animals sharpen their claws, but it is clear that it must have quite an opposite effect.

At the Cape there is a variety of the leopard more slender in the body, and differing from that of North Africa and Syria in the forms of the spots. This species preys chiefly on such of the antelopes as he can master, on baboons, and on the curious Pachyderm the *Hyrax Capensis*, or Das, a species of the same genus as the Coney of Scripture. It is not uncommon in the Cape Colony, and very frequently puts the farmer on the alert at night, who knows by the low half-smothered growl in the neighbourhood of his out-houses that this elegant spotted savage is near him, and looks for an opportunity of pouncing on his sheep. Thomas Pringle, in his "Narrative of a Residence in South Africa," mentions his having frequently heard the leopard's voice on such occasions. Major Denham relates that the panthers of Mandara, in Central Africa, are as insidious as they are cruel. They have been known to watch a child for hours when near the protection of huts or people. They will spring on a grown person, when carrying a burden, but make their attack always from behind. The flesh of a child or a young kid they devour, but only suck the blood of any full-grown animal which may fall a prey to their ferocity. Although this fine cat has a considerable awe of man, and usually tries to avoid him, yet as he is a very active and furious animal, when brought to bay he becomes a formidable antagonist. Mr. Pringle gives more than one instance of such attacks and their danger. He relates that two African colonists,

when returning to their farm from hunting antelopes, gave chase to a leopard which they had roused in a mountain ravine. They here tried among the

“ matted woods to tear

The skulking panther from his hidden lair,”

and succeeded in forcing the beast to try to escape by clambering up a precipice. Being hotly pressed and wounded by a ball, the leopard turned on his pursuers with frantic ferocity, and with one spring pulled the man who had fired at him to the ground, wounding his shoulder and tearing his cheek severely at the same time. The companion of the farmer in these lamentable circumstances tried to shoot the leopard through the head, but unfortunately missed his aim. On this the leopard abandoned his prostrate victim, and pounced on his second antagonist with such rapidity that before the Boor could draw his knife, the savage beast had struck him on the face with his claws, and for the time effectually blinded him. Notwithstanding this the hunter grappled with the leopard, and while struggling they both rolled down a steep bank. The man who was first attacked hastily reloaded his gun and rushed forward to save his friend. The leopard, however, had seized his second victim by the throat, and mangled him in such a manner that death was inevitable; and the comrade, although himself severely wounded, had only the melancholy satisfaction of killing the ferocious cat, which was already nearly exhausted with the loss of blood from the wounds he had received.

The leopard is often caught in traps at the Cape; these are formed of large stones and timber. When taken, they are usually baited with dogs in order to train them to contend with it. The leopard generally kills one or two of these. Like the jaguar, when pursued, it instinctively takes to a tree, and thus becomes often an easy prey to the rifle. It occasionally, too, during the day is found asleep in a fork of

a large bough, although Dr. Müller gives this as a habit distinguishing the panther from the leopard and tiger.

Although pre-eminently an animal of a very warm climate, it is interesting to know that it follows its prey to a considerable height on the Himalaya. Mr. Everest, in an interesting letter to Dr. Gray of the British Museum, mentions that during a winter residence there the common leopard of the plains was very abundant in the oak forests. He caught one in a trap, and constantly saw the tracks of them following the ghoral. At a height of nearly 12,000 feet above the sea he observed their tracks when pursuing the wild goat, or thâr, even when the ground was covered with snow.

Sir Everard Home, in the sketch of the life of John Hunter, prefixed to his posthumous "Treatise on the Blood," mentions that his distinguished relative was very fond of animals. He kept these at Earl's Court, near Brompton, and by attention to them they became familiar with him, and he amused himself with observations on their habits and instincts. This familiarity was sometimes attended with considerable risk, and occasionally led the great anatomist into situations of danger, of which he gives the following instance :—"Two leopards, which were kept chained in an out-house, had broken from their confinement, and got into the yard among some dogs, which they immediately attacked ; the howling this produced alarmed the whole neighbourhood ; Mr. Hunter ran into the yard to see what was the matter, and found one of them getting up the wall to make his escape, the other surrounded by the dogs ; he immediately laid hold of them both, and carried them back to their den ; but as soon as they were secured, and he had time to reflect upon the risk of his own situation, he was so much agitated that he was in danger of fainting."

A. W.

BRITISH MINING.

COAL (*concluded*).

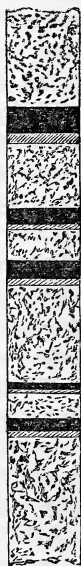
SINCE the beds of coal lie either in horizontal strata or in strata more or less inclined from the horizontal, it becomes easy by boring apparatus to determine the depth from the surface at which the coal lies and the thickness of the beds respectively. At a comparatively moderate cost, in this way many important points can be proved, which, if shafts had to be sunk, would be attended with great expense.

The position of the coal having been determined, means must be adopted for its extraction. The first operation is to sink a shaft of sufficient size for all the purposes required. Shafts vary in diameter from eight to eleven feet, and sometimes more. The miners have frequently much difficulty in this operation, from the character of the ground through which they have to pass, and from accumulations of water. Various methods, including timbering and bricking the shafts, are employed to meet these difficulties when they occur, and a process called "*tubbing*" is frequently adopted. Sometimes "*stone-tubbing*," or walling, is employed, but more commonly *metal-tubbing*. This consists of applying short cylindrical pieces of metal, which fit and can be bound together in a circle, and with these the shafts are lined. The difficulty of sinking some of these shafts,—"*winning a colliery*," as it is called,—will be understood when it is stated, that, as much as from two to three thousand gallons of water have on many occasions flowed into a shaft every minute, from the accumulations of that fluid in the stratum through which the sinking passes. This is stopped back by

the employment of the iron-casing mentioned, and the accumulating water is removed from the shaft by pumping machinery. These shafts vary considerably in depth according to the distance of the coal-bed from the surface. Where the coal-beds "*crop out*" at the surface they are sometimes worked "*open to day*," and such workings are commonly called "*Day-eye*." Many of the shafts in the Yorkshire coal-field around Leeds are but twenty or thirty yards deep; whereas at Pemberton Colliery, near Sunderland, the depth of the shafts exceeds fifteen hundred feet, and others are yet deeper. Several beds of workable coal may exist at different depths, as is shown in the accompanying vertical section of a sinking in South Wales; the black bands representing the coal; the lines beneath these, the *under clay*; and the dotted portions, the strata in which the coal is found. The shaft is, therefore, usually driven down to the lowest bed, and the operation of the removal of coal commences.

That which renders coal-mining so fatal to human life is the accumulation of *fire-damp* in the excavations, and to guard against its explosion requires the utmost care on all hands.

Fire-damp is light carburetted hydrogen gas, or, as it is sometimes called, marsh gas, since it is not unfrequently developed from decomposing vegetable matter in moist situations. Coal, especially some varieties, is constantly giving off this gas, and when it is mixed with a certain proportion of atmospheric air, it is fearfully explosive. For the purpose of removing this gas as rapidly as it escapes into the *levels* of the mine, various methods of ventilation have been adopted. One essential condition is that there should be two shafts sunk



through to the workings. At the bottom of one of these is placed a furnace, by the heat of which this shaft is converted into a huge chimney, through which a current of air is constantly ascending. Hence this shaft is called the *upcast shaft* or *pit*; and the other, through which air descends to supply the mine, is called the *downcast shaft* or *pit*. In some of our largest collieries, however, this current is effected by divisions in one shaft. It is not possible, within the narrow limits to which our description must be confined, to give any exact account of the ventilating arrangements. The object aimed at, and in many cases very satisfactorily attained, is to send along the numerous passages of the mine a full and sweeping current of air. By means of doors placed in proper positions, the current of air is made to circulate in one direction, carrying with it of course all dangerous gases, and rendering the air of the different levels safe and healthful. But this will be better understood when the workings themselves are described. The coal lying in beds, and alternating with beds of sandstone or shale, which are either horizontal or at some slight inclination, the character of the workings will depend upon the nature of the coal, of the pavement, or bed below the coal, and of the roof. The shaft, or shafts, being sunk to the coal, a *mine* or level is run on to connect the two shafts together, which is about six or eight feet wide, and from this gallery the workings are gradually extended. Four different methods of working are adopted in our coal-fields, these being determined by the thickness of the beds and the condition of the strata.

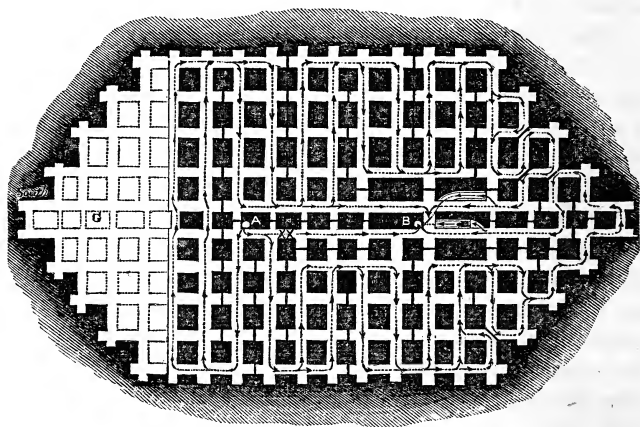
1. Working with *pillar and stall* where pillars of coal are left of a size just sufficient to support the roof.

2. Working with *post and stall* where the pillars are left of a large size, with a view to the removal of a considerable portion of them after the coal has been removed by the ordinary method from the colliery.

3. Working with comparatively narrow spaces, leaving a very large portion of the coal, the object being, when the galleries have been extended over the whole limits of the colliery, to work back; removing, if possible, all the coal, and allowing, as the pillars are successively removed, the superincumbent strata to fall in.

4. Working by the *long-wall* method, which consists in removing the whole of the coal as the workings advance, the strata crushing down as it proceeds.

In the next figure is given a portion of a general plan of working a coal-bed in the Newcastle district, from which the other modified methods will be comprehended sufficiently by the general reader.



All the black spaces represent the pillars left to support the roof. The white spaces are the passages or spaces from which the coal has been removed. The two spaces A and B are the up and downcast shafts, and the arrows mark the lines along which the air is made to circulate from one shaft to the other. To prevent the return of air by any of the

passages, and to secure the regular flow of the current, doors are fixed in these, which are usually attended to by boys: where passages are not required, the way is walled up. The space *G* is called the *goaf*, which is a large area from which the supporting pillars have been removed. In the Newcastle district panel working is adopted, that is, the coal-bed is worked out first in large divisions and then in smaller ones. The workings in a panel having been completed, the miners then begin to remove the pillars, and allow the roof to fall in. In this way a large irregular waste space is formed. It should be perfectly understood that our plan only represents a small portion of the workings of a colliery; but it is sufficient to show the method adopted; and it may be regarded as one panel.

The extent to which underground workings in many of our collieries are carried will be best understood by stating that some have perpendicular shafts of from one thousand to sixteen hundred feet deep, and levels or galleries to the extent of from twenty to seventy miles.

In these deep and dark recesses the coal-miner pursues his labours, breaking the fossil fuel from the seams. Tram-wagons are there ready for being laden, and these are either drawn by horses or pushed along the levels by men and boys. The coals are thus brought to the bottom of the pit or shaft, and raised in *corves* or *tubs* to the surface. The winding-machinery employed in the northern coal-fields is most perfect.

In these *corves* the miner descends to his work, and ascends from it, without any fatigue. Sometimes, however, fatal accidents arise from the breaking of the ropes by which the *corves* are suspended. Various contrivances have been introduced for the purpose of stopping the descent of the *corves* or the cages which may be employed for this purpose in the event of the rope breaking, the arrange-

ments usually involving some means of grasping or biting on rods or guides,—which extend the entire depth of the shaft,—the moment the suspended weight is freed by any accident.

Numerous fatal accidents are also constantly occurring from the falling of the roof ; but the most serious casualties result from the explosion of fire-damp.

Looking at the plan given it will be seen that, however completely the air-current may sweep the galleries of the mine, dangerous accumulations may occur in the goaf. Nearly all the serious colliery explosions happen after a change in atmospheric pressure. The goaf becomes full of carburetted hydrogen gas ; a trifling fall in the barometer relieving the gas from pressure, it leaks out into the workings, and here combining with atmospheric air, becomes explosive.

The safety-lamp of Sir Humphry Davy was invented to protect the miner from these disastrous explosions ; and most perfectly it answers the desired end, if carefully used.

A few words on the principle of the safety-lamp may not be out of place. If a piece of wire gauze is held over a flame it will be found that no flame will pass through it, though the smoke does so freely. Any gas permeates a wire gauze, but the same gas in combustion will not pass through the same gauze. The safety-lamp is, therefore, surrounded with wire gauze, and no air can get to the burning wick without passing through the surrounding wire. Supposing the miners to advance along their subterranean road, and suddenly to come into a mixture of fire-damp and atmospheric air, the explosive mixture will pass readily through the wire and explode as soon as it comes in contact with the flame, but the fiery mixture cannot communicate with the explosive gas on the outside. When the mixture is very dangerous, the flame expires through

want of oxygen to maintain the combustion, and thus all further risk is avoided. The safety-lamp is, indeed, a faithful monitor,—it shows by the character of the flame the exact condition of the atmosphere.

The coal-miner is usually a reckless creature, very careless of life, and many of the accidents which occur result from his own want of ordinary caution. As an example, a coal-miner was conducting a gentleman through a mine, when the visitor inquired about fire-damp. “Oh,” says the collier, “there is plenty of it above us.” “How do you know that?” says the stranger. “Look,” replied the miner, “this candle now burns with a short clear flame,—just watch it.” The candle was gradually raised towards the roof, and the flame as gradually elongated and lost its illuminating power. At last a long taper blue flame was formed. “Now,” exclaimed the miner, “if I rise the candle one inch higher, we shall have an explosion.” The speed with which the gentleman retreated may well be imagined.

The destructive character of one of these explosions of fire-damp in our mines is greatly increased by the formation of *after-damp* or *choke-damp*. In exploding, all the oxygen of the mixture is combined, to form carbonic acid, with the carbon, or water, with the hydrogen, leaving a mixture of nitrogen and carbonic acid to do the work of death, destroying by asphyxia all such as escape the wild destruction of the rushing flame.

Legislative interference has endeavoured to ameliorate the condition of the miner; but hitherto all the enactments have failed of producing the desired effect. The number of lives lost annually in our coal-mines continues as large as ever. Inspectors of collieries are now to be increased; they are to examine and report on the conditions of colliery workings, but even under the operations of the new bill, we fear they have but little power to enforce any of their

recommendations, and they remain powerless to punish, in any way, even the grossest cases of neglect.

It is quite certain that our collieries might be worked in comparative safety—even the most “*fiery*” of them—if a sufficient number of shafts were sunk to the workings. Against doing this, the expense of construction only is urged. Surely our humane public would not hesitate to pay a trifle more for the luxury of a fire, if by so doing they could save the lives of those most industrious men to whom we owe that luxury.

We conclude by giving a list of the number of collieries in different districts, and an estimate of the quantities of coal raised. From this it will be seen that the number of collieries stated in the commencement (vol. iii. p. 415), taken from received authorities, was too high. We have corrected the error by especial inquiries made in each locality since that portion of the paper was written.

Collieries in Wales, North and South	306
Gloucestershire and Somerset	85
Shropshire	47
Staffordshire	515
Nottingham and adjoining counties	43
Derbyshire	124
Yorkshire	272
Lancashire	340
Cheshire	30
Cumberland	25
Durham and Northumberland	224
Scotland	367
Ireland	16
	<hr/>
	2394

which produced in 1854 upwards of 60,000,000 tons of coal.

R. H.

LIFE, IN ITS INTERMEDIATE FORMS.

No. IV.

CRUSTACEA.

(*Crabs and Shrimps.*)

THE dark, mysterious world of waters hides many a “moving creature that hath life;” and the solitary pacer along the black line of sea-weed that bounds the domains of earth and sea, or the curious Paul Pry that is ever and anon peering into nooks and holes and crannies in the surge-worn rocks, is continually surprised by some strange being, some minim of existence it may be, uncouth and slow, or lithe and elegant, and rapid as lightning; dull and sombre as suits its obscure retreat, or bright and gaily-tinted from the solar ray; some new combination or modification of organs; some novel exhibition of instinct, habit, or function; that awakens his admiration, and, if he be accustomed to turn from the creature to the Creator, elicits the tribute of praise to Him who made all things for His own glory.

The CRUSTACEA pre-eminently make the waters their home; they are the aquatic division of that mighty host of living things, that range under the title of ARTICULATA. The Insects, Spiders, and Mites, counting their armies, as they do, by hundreds of thousands, leave, with scarcely an exception, the sea untouched; and though a goodly number of these are found in the fresh waters of river, lake, and pool, they are few compared with the vast body. The solid earth and free air constitute *their* sphere of existence. The CRUSTACEA, on the other hand, though represented by a few species that crawl on the land, and more efficiently in

fresh waters, mostly range the sea, dwelling, according to the diversity of their structure and instinct, from the sunny surface to the unilluminated depths ; from the shallows of the shore to the boundless solitudes of the ocean ; from the genial waves of the Equator to the ice-fields of the Pole, to "Arctos and eternal frost."

Nor let this last assertion be considered as a sounding platitude with which to sweep the sentence round gracefully ; for it is literally true : as far into the dreary regions of the Pole as our bold explorers, or still hardier whale-fishers, have penetrated, they report the Arctic Sea to swarm with small CRUSTACEA. One little species in particular, found in immense numbers beneath the ice, was turned to account in the temporary sojourn of the discovery expeditions in winter quarters. The men had often noticed the shrinking of their salt meat which had been put to soak, and a goose that had been frozen, on being immersed to thaw, was, in the lapse of forty-eight hours, reduced to a perfect skeleton. The officers afterwards availed themselves of the services of these industrious little anatomists, to obtain clean skeletons of such small animals as they procured, merely taking the precaution of tying the specimen in a loose bag of gauze or netting, for the preservation of any of the smaller bones that might be separated by the consumption of the ligaments.

In most respects, CRUSTACEA are so much like Insects, that the older naturalists, and the illustrious Linnæus among the number, arranged them under the great class INSECTA. They have, however, a greater number of limbs ; the full provision being five pairs of true feet, and three pairs of organs, which (because of a certain ambiguity in their function, like that useful piece of furniture of which we read,—

"Contriv'd a double debt to pay,

A bed by night, a chest of drawers by day,")—

are called *foot-jaws*. Besides these, a great number of the

species have five or six pairs of jointed limbs attached to the under-side of the abdomen, which are generally used for progression, and are called *false feet*. Their mouth is furnished with three pairs of jaws and two pairs of antennæ. It must be borne in mind, however, that the total complement of these members is not found present in every species, some of them being wanting in certain extensive groups.

The researches of a naturalist who has paid much attention to this class, Mr. Spence Bate, have just shed a flood of interesting light on the office of the organs last-named.* Any one may easily identify them in a Lobster or Prawn. Take the latter. On each side of the long sword-like and spiny beak that projects above the head, there is an organ consisting of three stout joints, at the tip of which are three threads, of which two are of great length, and formed of numberless rings, and the third is short. These organs then constitute the *inner pair of antennæ*. Below these there is a pair somewhat similar, but they consist each of five joints, and one long thread, with a large flat plate on each side. These are the *outer antennæ*. The former are the organs of hearing, the latter those of smelling.

In the living animal the inner antennæ are always carried in an elevated posture, and are continually flirited to and fro with a rapid jerking motion that is very peculiar, *striking the water* every instant. It is very conspicuous in the Crabs, from the shortness of the organs in question. When next our readers, gazing on the tenants of those wonderful marine tanks at the Zoological Gardens in the Regent's Park, see a Crab tapping the surrounding water, and, as it were, feeling it,—they may understand that he is trying it for the vibrations of sound; it is the action of vigilant listening, which never relaxes its guard.

To help the perceptions of the animal, the many-jointed

* Ann. and Mag. of N. H., July 1855, p. 40.

filament which strikes the water is fringed with hairs of great delicacy, standing out at right angles to the stalk, so that the slightest vibrations cannot fail to be conveyed to the sensorium. This may be called the *outer ear*; but in the interior of the basal joint, which is large and swollen, there is a *cochlea*, or *inner ear*, having calcareous walls of delicate texture, to the centre of which passes the auditory nerve.

The outer antennæ differ greatly from the inner in their internal structure, though they resemble them so much in form. In the Crabs the basal joints form a sort of box or compact mass, with an orifice on the side next the mouth, closed or opened at pleasure by means of a little door with a hinge, on the interior side of which a long bony lever is fastened with the necessary muscles attached to it. In the Lobster and Prawn the door is wanting, but the orifice is protected by a thin membrane; and in some of the lower forms it is placed at the end of a strong spine or projection. In all cases, however, the orifice "is so situated that it is impossible for any food to be conveyed into the mouth without passing under this organ; and of this the animal has the power to judge its suitability for food by raising the *operculum* [or door] at will, and exposing to it the hidden organ—the *olfactory*."* Who can refrain from exclaiming, at the sight of such beautiful, such exquisite contrivances for the safety and well-being of creatures so mean, "Great and marvellous are thy works, Lord God Almighty!"

The "crust," or skin which envelopes the body, in these animals differs from that of Insects, inasmuch as it generally contains a considerable portion of carbonate of lime. In many of the smaller forms, as in the Shrimps and Prawns, it takes the consistence of thin transparent horn; but in the larger, as the Lobsters and Crabs, it acquires a great density, is perfectly opaque, and of the hardness of true shell, or

* Bate, loc. cit., p. 44.

even of stone. In the tips of the stout claws of the Crab (*Cancer pagurus*), we see it at its maximum of induration.

The breathing organs furnish another point of diversity between the Crabs and Insects. In the latter they are air-pipes, in the former gills; always contrived, though under many modifications of form and position, to extract the vivifying oxygen from water, and not from the atmosphere. Even the terrestrial species, as the common Woodlouse or Button (*Oniscus*), that rolls itself up into a ball in our gardens, need a certain degree of moisture to surround them, and hence they crawl out of their damp retreats only in wet weather. In the common Crab the gills are those long, finger-like, pointed pyramids of whitish substance often called "dead men's fingers," that are seen in two groups, when the carapace or "shell" is removed. If we examine them we shall find each pyramid to consist of a vast multitude of thin membranous plates closely packed together, but yet admitting the water to flow freely between them, which is kept in constant circulation by means of innumerable cilia with which the surfaces are clothed.

The increase of the race is effected only by means of eggs, no *Crustacean* that we remember bringing forth its young alive. Every one is familiar with the eggs, "spawn," as they are termed—of the Prawn, the mass of intensely red globules that is carried beneath the belly, and that is so difficult to remove. The difficulty arises from the manner in which the false feet, all fringed as they are with fine hairs, penetrate the mass; and thus we perceive another use of these organs, besides that of locomotion, already alluded to. The eggs, as they are laid, are deposited on the false feet, and are carried about by the female parent until near the period of hatching. In some of the Opossum-shrimps, (*Mysidæ*), the eggs are carried in one or two oval pouches beneath the thorax; while in the curious little Water-fleas,

(*Cyclopidae*), and the still more remarkable *Epizoa*, the eggs are carried on each side of the tail in two oval or cylindrical bags, generally of large size, and sometimes of such length as to exceed that of the whole animal besides.

Like Insects, the Crustacea undergo a metamorphosis—perhaps with one or two exceptions. No one, uninstructed, could possibly recognise the earliest stage of the common Shore Crab (*Carcinus mænas*). A hemispherical carapace or shell not so big as a small pin's head sends up from its centre a long, pointed, curved spine, while another spine curves downwards from the front beneath the body like a beak; the eyes are without stalks; there are two pairs of jointed feet, ending in tufts of stiff bristles; and a long jointed body carried straight behind, which ends in two bundles of diverging spines. Such is the grotesque character under which our little masquerader makes his "first appearance on any stage." After a time he drops his outer garments, and assumes a second form—widely different from the former, and still sufficiently remote from the ultimate one; and it is not till the third moult that the little creature, now grown to the size of a hemp-seed, begins to be recognisable as a Crab; though even now he has several stages to pass through, several doffings of coats and trousers, before he is quite a proper Shore Crab, *comme il faut*.

This periodic casting of the skin is a needful provision for growth in these animals, as in Insects; in them it is confined to the caterpillar state, in which growth alone takes place; but here it prevails, because growth is continued, long after the perfect form is attained. The rigidity of the encasing armour forbids the possibility of increase in its capacity. The growth, therefore, is periodic. At certain intervals the hard crust is thrown off in several pieces, a new crust having been prepared beneath, which is at first soft, flexible, and expansile. The body, now freed, instantly

enlarges in all directions, and in a few minutes has attained the full extent of growth needed. The crust at once hardens, and in a brief space becomes as inflexible as was its predecessor, admitting no further enlargement either of its own surface or of the contained organs. The animal usually undergoes this process in the most retired situation it can find, instinctively conscious of its unprotected condition when soft, and apparently feeling sick and feeble.

Another interesting circumstance in the economy of this class, and the last we shall at present notice, is the power of renewing injured or lost limbs. If one of the joints of a Crab's leg be wounded, it would bleed to death but for this provision. The animal, however, wisely adopting the saw of "Young Jem" in our nursery-rhyme,—

"Better lose part than all,"—

stiffens the hurt limb, and suddenly throws it off, the separation invariably taking place at the point where the second joint is united with the first. A small gland is placed here, according to Mr. H. Goodsir,* which supplies material for future legs as required. "When the limb is thrown off, the blood-vessels and nerve retract, thus leaving a small cavity in the new-made surface. It is from this cavity that the germ of the future leg springs. A scar forms over the raw surface caused by the separation, which afterwards forms a sheath for the young leg." "As the growth advances the shape of the new member becomes apparent, and constrictions appear, indicating the position of the articulation; but the whole remains unprotected by any hard covering until the next change of shell, after which it appears in a proper case, being, however, still considerably smaller than the corresponding claw on the opposite side of the body, although equally perfect in all its parts."†

P. H. G.

* Ann. of N. H. vol. xiii. p. 67.

† Jones's "General Outline," p. 343.

BIBLIOMANIA.

It was a saying of Charles V., "There are only four things worth living for,—old wood to burn, old wine to drink, old books to read, and old friends to converse with." Could the thrifty Fleming quit his coffin for the second time, he would marvel at the cost of one at least of his imperial luxuries, and would certainly grudge to pay a butt of sack or a hogshead of Rhenish for a pamphlet which in his own day was a new publication, and would have been counted dear at a guilden.

We do not wonder at the large sums expended on the autographs of celebrated authors. Any one who has looked at the first draft of "Paradise Lost" in Trinity College Library, or who has turned over the leaves of Luther's "Isaiah," at Heidelberg, must have found himself all but in contact with the great departed. There is such a story in every blot; so much of character in every fantasia and flourish of the pen; such meaning in every word erased or interlined, that such a holograph answers most of the purposes of a personal intimacy, and, in the case of dark or disputed passages, it would be the best of commentaries.

Collectors of autographs are now so numerous that large prices are paid for the mere signature of such men as Sir Thomas More, or Lord Bacon, or Oliver Cromwell; and, were one of the four or five veritable "Will: Shaksperes" in the market on one of these dog-days, it is hard to say where their frenzy would carry the competitors.* But manuscripts of intrinsic interest or importance are objects of rational ambition; and, as indications of the value set on

* The autograph of Shakspeare on Montaigne's Essays cost the British Museum 120*l*.

the filings and gold-dust of history by the present generation, it is well to record the amounts which they occasionally bring. For instance, in the last month of May 71*l.* were paid for a letter of Charles I. to the Marquis of Ormond, in which he declares war preferable to a dishonourable peace, and prefers "the chance of warr then [than] to give my consent to any such allowance of popery as must evidently bring destruction."

At the same sale—Mr. Baker's—40*l.* 10*s.* were paid for a letter to Lady Strafford from her husband, then a prisoner in the Tower, in which he expresses his belief that there was nothing capital in the charges against him, or that "at the worste, His Majesty will pardon all." At the sale of the Macartney library, in January 1854, two volumes of letters by Andrew Marvel and others, addressed to Sir G. Downing, British Minister to the States-General in the time of Charles II., realised 152*l.* The last time that the original of Gray's "Elegy" was offered for sale it brought 131*l.*, and "Scots wha hae," by Robert Burns, fetched thirty guineas. But, perhaps, the largest sum for a single manuscript, combining historical interest with the value of a much-prized autograph, was offered in America a few years ago. The subject of competition was a paper of eight pages, in the hand-writing of George Washington, containing his address to the people of the United States at the close of his second Presidentship, in which he positively declines a re-election. We believe that it realised 2300 dollars, and was purchased by Mr. Lenox, whose library is remarkable for its treasures illustrative of American history and its almost unequalled collection of English Bibles. At Mr. Dawson Turner's sale, 2000*l.* were paid for four volumes of MSS., the real attraction being one of the four which contained letters by Bradford and other Reformers and martyrs. It was bought by the British Museum.

However, many of our readers will be more surprised at the prices paid for printed books, especially as most of these books have little to recommend them except their oldness or their oddity. It sometimes happens that a single impression or a very few copies of some costly work are thrown off on vellum or silk or satin ; and large collections of such useless luxuries have occasionally been brought together at an enormous expense. Some men of wealth have taken a fancy for books which have been privately printed ; or which have been burnt by the hangman ; or which have in any way brought their authors into trouble ; and, as in the case of the “*Vinegar Bible*,”* a typographical error has sometimes made the fortune of a book, especially if it is an error which only occurred in early impressions and was corrected in later copies of the same edition. But the two elements which chiefly enhance the market price of old books are the interest now felt in the history of printing, and the zeal with which the admirers of favourite authors collect copies of every known edition.

Many of the earliest printed books are in themselves remarkably beautiful, and they possess an additional value as relics of that noble band of Reformers, the fathers and founders of modern typography. As a specimen of the demand for such bibliographical antiquities, we quote the following prices paid, in July 1854, at the sale of Mr. Gardner of Chatteris :—

The Apocalypse : a block-book	. . .	£161
Chaucer's “ <i>Canterbury Tales</i> ,” printed by		
Wynken de Worde, 1488	. . .	245
Caxton's “ <i>Life of Jason</i> ,” 1475	. . .	105
,, “ <i>Raynard the Fox</i> ,” 1481	. . .	195
,, “ <i>Golden Legende</i> ,” 1483	. . .	230

The first book which Caxton printed with a date was

* So called because in the Parable of the Labourers in the Vineyard the latter word is misprinted *Vinegar*.

the "Recuyell of the Historyes of Troye," 1471 ; and for a copy of this work a thousand guineas were paid at the famous Roxburghe sale.

But there are certain books deservedly popular, the early and peculiar editions of which form an interesting collection. In the Town Library of Trieste there are seven hundred and seventy-two editions of "Petrarch's Poems," and one hundred and twenty-three of the works of Pope Pius the Second (*Æneas Sylvius Piccolomini*) ; and it would need a separate building to hold all the editions of Shakspeare or Bunyan, along with the various literature which their works have called into existence. Within the last twelve months a copy of Matthews' Bible, 1537, has sold for 150*l.* ; Cranmer's, 1539, for 121*l.* ; Coverdale's, 1535, for 365*l.* First editions of Shakspeare have repeatedly sold for sums varying from 160*l.* to 250*l.*

In the British Museum is a translation into Italian verse of the first letter of Columbus relating his discovery of the West Indies, and of which it is believed that there is no other copy. It extends to only four leaves, and was bought for 75*l.* ; probably the most costly typographical fragment in existence. But the glories of all similar rarities must yield to the famous Valdarfer Boccacciò. It was a small folio, in faded yellow morocco, of date 1471, which had long kept its station in the library of the great book-buying Duke of Roxburghe, and which was believed to be the only perfect copy of the famous story-teller. At the dispersion of the Ducal collection, it was to be sold on the 17th of June, 1812 ; and it may amuse our readers to transcribe Dr. Dibdin's enthusiastic account of the contest it occasioned :—

"The rain fell in torrents as we alighted from the carriage ; the room was crowded to excess : and a sudden darkness which came across gave rather an additional interest to the scene. Mr. Evans prefaced the putting up of the article by an appropriate oration, in which he expatiated upon its excessive rarity, and concluded by informing the company of the exces-

sive regret, and even ‘anguish of heart,’ expressed by M. Van Praet, that such a treasure was not at that time to be found in the imperial collection at Paris. Silence followed the address of Mr. Evans. On his right hand, leaning against the wall, stood Earl Spencer. A little lower down, and standing at right angles with his Lordship, appeared the Marquis of Blandford. My Lord Althorp stood a little backward, to the right of his father, Earl Spencer. Such was the ground taken up by the adverse hosts. The honour of firing the first shot was due to a gentleman of Shropshire, unused to this species of warfare, and who seemed to recoil from the reverberation of the report himself had made. ‘One hundred guineas!’ he exclaimed. Again a pause ensued; but anon the biddings rose rapidly to five hundred guineas. Hitherto, however, it was evident that the firing was but masked and desultory. At length all random shots ceased, and the champions before named stood gallantly up to each other. ‘A thousand guineas!’ were bid by Earl Spencer, to which the Marquis added ‘ten.’ You might have heard a pin drop. All eyes were turned—all breathing well-nigh stopped—every sword was put home within its scabbard, except that which each of these champions brandished. ‘Two thousand pounds are offered by the Marquis!’ Then it was that Earl Spencer, as a prudent general, began to think of an useless effusion of blood and expenditure of ammunition, seeing that his adversary was as fresh and resolute as at the onset. For a quarter of a minute he paused, when my Lord Althorp advanced one step forward, as if to supply his father with another spear for the purpose of renewing the contest. The father and son for a few seconds converse apart, and the biddings are resumed. ‘Two thousand two hundred and fifty pounds!’ said Lord Spencer. The spectators are now absolutely electrified. The Marquis quietly adds his usual ‘ten,’ and there is an end of the contest. As the hammer fell, its echo was heard in the libraries of Rome, of Milan, and St. Mark.”*

It was said that the successful competitor, afterwards Duke of Marlborough, was prepared to go as far as 5000*l*.

Whilst such rarities are bringing their weight in gold, it is pleasant to know that the most valuable books are also the most attainable. The sum expended on a daily cigar would soon surround the young man who reads these lines with the best of the British Classics; and the “Book of Books” may now be obtained for less money than a loaf of bread.

J. H.

* Dibdin’s “Decameron,” vol. iii. p. 64.

REVIEW OF THE MONTH.

ON the 3d of July the Asylum for Idiots, near Redhill, Surrey, was opened by Prince Albert. It is a noble building, capable of containing 500 inmates,—half that number being already accommodated in temporary premises at Highgate and Essex Hall. Within the eight years which have elapsed since the Society made its first efforts to educate the Idiot, the experiment has been crowned with signal success. Children who could not articulate have been taught to speak, and numbers who were little more than dull masses of imperfect animation, passing through the world in a state of dreary somnambulism, have waked up to the enjoyment of their senses. Of the 97 boys at Essex Hall, 46 write in copy-books, and 30 on slates; 73 are taught reading; 17 drawing; 8 write from dictation; 25 have made progress in arithmetic. There are also 7 mat-makers, 10 shoemakers, 6 basket-makers, 11 tailors, 9 gardeners, 5 plaiters, 2 rope-makers, 5 lads serving in the house, 1 carpenter, and 1 fancy mat-maker.

Admiral Sir Edward Parry died on the 8th of July at Ems. With his three North-Polar voyages our readers will be well acquainted, and his efforts to improve the moral condition of the British sailor give him claims to a distinction even higher than that which he has earned by his courage and his consummate seamanship. The nearest point to the North Pole which has yet been reached was attained by Sir E. Parry. In 1827 he undertook a sledge expedition which penetrated as far as $82^{\circ} 45'$ N. lat. Sir Edward was born in 1790.

Some of our readers may scarcely be aware that in

England, until now, twenty persons could not meet for the worship of God without a license from the ecclesiastical authorities ; and, even within the present century, fines have been inflicted for the infringement of this law. A bill designed to do away with a state of matters so inconsistent with the spirit of the British constitution, passed the House of Commons under the auspices of Mr. Kinnaird ; and, to the honour of the people's representatives be it recorded, we do not know that a single voice was raised against the measure. Its fate was different in the House of Lords. Here it was opposed by leading Conservatives and by most of the bishops ; and its eventual triumph was only owing to the chivalrous exertions of one whom the country is learning to regard as one of the wisest of statesmen, as well as the purest of patriots,—the Earl of Shaftesbury.

In France the Protestant churches in the departments of the Saone and Loire, which had been closed by the prefects, have been reopened by order of the government. The poor man, Cecchetti, who was lately sentenced to twelve months' imprisonment for reading the Bible, has also been set at liberty by the Grand Duke of Tuscany.

On a former occasion (vol. iii. p. 303) we called attention to Dr. Stenhouse's experiments on charcoal as a disinfectant ; and we have just had an opportunity of inspecting the simple but ingenious apparatus by which from the foulest atmosphere pure, that is filtered, air may be pumped or made to percolate into an apartment. We are glad to find that Dr. Stenhouse's plans have been extensively adopted in the Crimea ; and in our own hospitals and public buildings his plans will be found invaluable.

We have received the fourth edition of "The Method of the Divine Government, Physical and Moral," by Professor M'Cosh. It is cheering to find that a work so full of sound and vigorous thought has found so many readers

in this country, and that it has circulated even more widely in America.

No publication of the season has delighted us more than Mr. Young's "Christ of History." As a contribution to the Christian argument it is as new as it is conclusive, and it possesses a charm wanting in most of its predecessors on the evidences, which are too frequently beautiful avenues conducting to an empty temple. But beginning with the acknowledged facts in the life of Jesus of Nazareth, and dwelling only on these, in the work before us His Divine glories are so made to develope that to the candid inquirer or reluctant doubter no alternative is left except to cry "My Lord and my God!" Brief, unostentatious, and convincing, it is a book for which many an earnest spirit will be thankful.

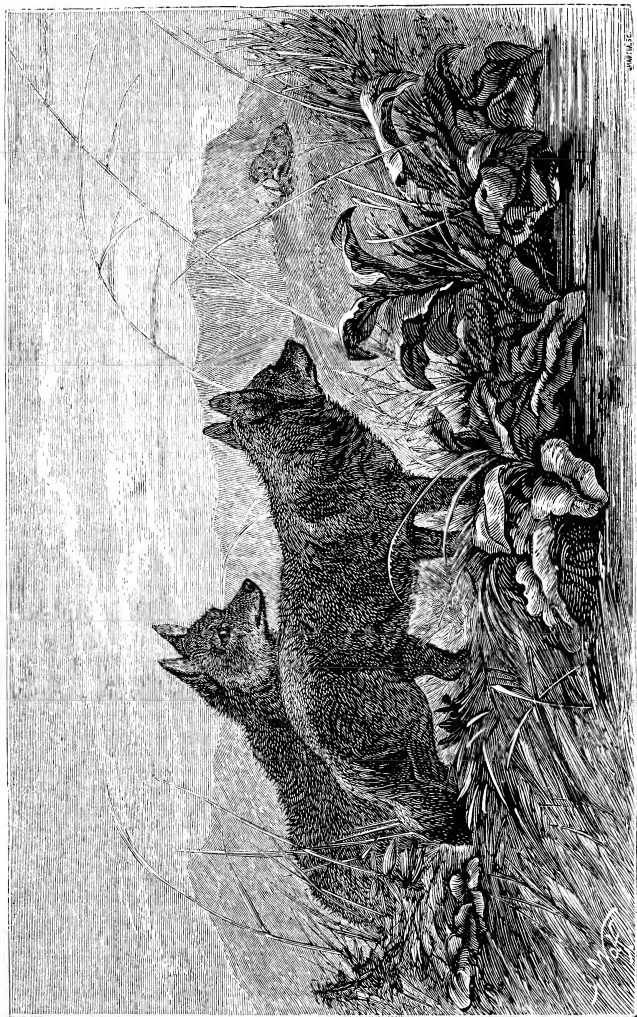
Large additions are being made to the literature of Natural Theology. A new work on the subject is promised by the acute and original writer of "The Philosophy of the Plan of Salvation." Mr. Thompson, under the title "Christian Theism," has published the first Burnett prize essay. Mr. T. Roberts has given the result of much thought in an unassuming little volume, "God and His Works; or, the Existence of God in Harmony with Human Consciousness." And, perhaps, destined to more popularity than its companions, in virtue of its poetic glow and popular style, we have Mr. T. Ragg's "Creation's Testimony to its God."

There has just appeared the first volume of "Letters of John Calvin, compiled from Original Manuscripts, and Edited, with Historical Notes, by Dr. Jules Bonnet: translated by David Constable." It is a worthy monument of the majestic, because God-fearing, truth-loving, mind of the Swiss reformer; and not only is it the best biography of Calvin, but it throws much light on the inner life of the Reformation, and introduces us to the homes and studies of the men who, under God, created the Europe now existing.

We have read with much interest a "Memoir of the Rev. J. Trench, late Superintendent of the Edinburgh City Mission." It is a touching tribute from the pen of Dr. A. Thomson, to the memory of one of those good men of whom this world is not worthy, and who, from untoward circumstances, are obliged to leave it with their errand half performed.

To those who love the country, we commend the "Cottage Gardener," now under the editorship of Messrs. Johnson and Hogg. It is full of instructive and amusing papers on fruits and flowers, birds and bees, and about every rural thing.

At present patronage is all that is required in order to obtain a clerkship in a Government office, and very moderate attainments in penmanship and arithmetic are qualifications sufficient for entering on its duties. There can be little doubt, however, that recent events and the force of opinion will necessitate a change, and that, following the example of the East Indian Government, Downing Street and Somerset House will open their doors to the fittest and the worthiest. In prospect of the change, Mr. Leone Levi has addressed a letter to Principal Jelf, suggesting that the "Civil Service and Commerce Departments" of King's College should extend their arrangements, so as to educate young men in every branch of knowledge requisite for the service of their country. For example, an employee in the Customs should know something of the Law of Shipping and Customs, Geography, and Foreign Languages. As the Board of Trade is now constituted, its clerks should have some acquaintance with Commerce and Agriculture, Statistics, Political Economy, Shipping, and International Law. Under the enlightened presidency of Dr. Jelf, King's College has done much for such branches of education, and with the paths which are about to open to honourable ambition in the civil service of this country, colleges which are true to their own interest will follow the example.



Jackal (*Canis aureus*). The Fox of Scripture.

LEFORT: THE FIRST RUSSIAN ADMIRAL.

SINCE the days when Rome on the model of the Carthaginian hulk, extemporised the little fleet that was to carry destruction into the great African city, the world has never witnessed the production of a navy on so short a notice, or from such rough materials, as that which Peter the Great launched into the Sea of Asoph. And all the rather that the Russians have no longer a navy in that sea, it may interest our readers to know something of the man under whose auspices this feat was accomplished.

FRANCIS LEFORT was descended from an ancient and honourable Piedmontese family, which had at the period of his birth, in May 1656, been established at Geneva for upwards of two centuries. Although his ancestors had held the highest posts in the state, the parents of Lefort were far from being affluent, a little farm constituting their whole property.

Their only son, Francis, was placed at the public school of his native city, where he quickly displayed that talent for languages which was to be the main source of his future greatness. He was not remarkably studious, but his perception was acute, and his memory retentive. He was fond of athletic exercises, and even preferred them to mental labours; notwithstanding, when he left school, at the age of fourteen, he had made some progress in the study of the sciences, and had earned the title of "Master of Languages."

Either actuated by the desire of pushing his fortune in the world, or, according to another account, tempted away from home by the flattering offers of a French diplomatist, at an early age Lefort found himself in Holland. Here a German colonel, of the name of Verstin, was raising troops

for the Czar of Muscovy. He offered the young Swiss a sub-lieutenancy in the Russian army. With more zeal than discretion Lefort accepted it, and towards the close of 1675, and when he had not yet completed his twentieth year, he found himself at Archangel, the only port then belonging to Russia. But before Verstin arrived the Czar Alexis had died, and, unrecognised by the new government, the German colonel was obliged to disband his regiment and leave every man at liberty to provide for himself as best he could.

Depth of winter as it was, Lefort set out for Moscow. His first care was to make himself master of the Russian language. This accomplishment recommended him highly to the Danish ambassador, M. de Hoorn, whose secretary was unacquainted with the Slavonic. Lefort's services were offered and accepted, and he was soon found to be an invaluable appendage to the embassy. Besides rendering assistance of a miscellaneous character, he discharged the more arduous duties of secretary, though the former nominee continued to hold his post and title.

It was at the dinner-table of M. de Hoorn that the young Peter is said to have first met, and been fascinated by Lefort. After this, business and pleasure often brought them together, and the admiration that had been engendered by the brilliant conversation and graceful polish of the stranger, gradually developed into a solid and mutual friendship. The few years of difference that existed in their ages were on the side of Lefort. This advantage, joined to his superior information and knowledge of the world, restored the equilibrium that the more exalted station of the Czar might have destroyed, had not the latter always sought to place merit before rank. Nothing, indeed, arose to check the intimacy between the Czar and the secretary, while many circumstances tended to cement it. Unfortunately alike in their love of dissipation and pleasure, they

were, by a strange coincidence, both devoted to grave pursuits and indefatigable in the discharge of duty. Besides, Lefort was fluent in the very languages that Peter wished to learn, and, moreover, he knew something of the military art, and was ever ready to abet, with his advice and concurrence, the mighty projects of reform that even now Peter was secretly and unsuspectedly meditating.

To the request of the Czar that he would allow Lefort to pass into his own immediate service, M. de Hoorn readily assented, actuated quite as much by a desire to advance the interests of his employé, as to render himself agreeable to the future potentate.

Peter now created Lefort captain of an infantry regiment, which honourable and honorary post not entailing very arduous duty, he at the same time took him away to his country residence of Préorbazinski. There he revealed to him his daring plan of abolishing, at some future day, the power of the Strelitzes, and questioned him as to the opinion he had formed of that corps. Lefort answered that he believed them to be a fine body of men, possessing good material for an army ; but he proceeded to point out the many defects in their discipline, uniform, and entire system. He described the military regulations of the Western countries of Europe, and finally undertook to raise, discipline, and dress, a little band on their model. Fifty youths from the cottages of the neighbouring peasantry were hereupon selected for the purpose, some of the sons of the boyars, or nobles, were given them as officers, and Lefort applied himself to his task. Such entire satisfaction did his success give to the young Czar, that he insisted on entering the little regiment as drummer, and thence rising through its ranks. No wonder that the Préorbazinski guards became inviolably attached to their sovereign, and remained his most firm adherents.

Ivan took no notice of the proceedings of his young brother. His band, with their strange accoutrements, were considered at court as the effects of a boyish whim, and were usually called "the playmates of the Czar Peter." They increased, however, in numbers and efficiency. One of their "plays" consisted in building fortresses, which half garrisoned, and the others besieged. On some of these occasions the old Muscovite barbarity used to reawake in them under the form of enthusiasm, and too often there were *real* lists of killed and wounded. Once, even General Lefort, as he led on a storming party of the kind, received a wound.

Six thousand troops that General Gordon had raised and drilled now encouraged the Czar to march against the Turks and Tartars of the Crimea. He commissioned Lefort, who also bore the title of General, to enrol twelve thousand more, which the latter effected without difficulty, and five colonels and other officers in proportion were given him. At the same time he was named Admiral of the fleet, and sent to Voronez to hasten the construction of the same. It consisted of a few long-boats, and two vessels of thirty guns each, which were then in the hands of some Dutch and Venetian shipwrights. They were to sail on the Voronez, which falls into the Don, and to keep the Crimean Tartars in a state of subjection.

The Czar relied much on the valuable assistance they were likely to afford at the siege of Asoph, for which he was now diligently preparing ; but, unfortunately, they could not be got down the river in time, so Admiral Lefort placed himself at the head of his division, and, in conjunction with General Gordon, advanced towards Asoph. Marshal Sheremetof commanded the expedition, and had, besides the troops above mentioned, a corps of Strelitzes, a body of Cossacks, and a considerable train of artillery. The Czar took no prominent post in the army, but served as a simple

volunteer. The capture of two Turkish forts along the river cheered the men and made them prepare for the siege with double vigour. The treachery and revenge, however, of one individual nullified all their exertions. Jacob, a native of Dantzic, who directed the fire of a portion of the artillery, was, for some breach of discipline, condemned by his general, Schim, to be flogged. He submitted to the sentence, but in the night he won over several of the soldiers, and, after spiking as many guns as they could get at, they all deserted to the enemy. The numerous garrison, under Jacob's able command, successfully defended the place against Sheremetof, who, after sustaining considerable loss, was obliged to raise the siege.

Early in the following year, 1696, Peter prepared to renew the attack. The death of Ivan had left him the supreme and sole command of the empire. He collected a large army, and demanded and obtained from Leopold and other foreign powers aids in engineers, artillerymen, and sailors. This time the arms of the Czar were crowned with success both by sea and land; his little fleet conquered a flotilla of Turkish caïques sent against it from Constantinople, and took some of them. The ingenious device of General Gordon procured the reduction of the town; which surrendered on the 28th of July.

The victorious army made a triumphant entry into Moscow, where decorated arches, fireworks, and all the other tokens of joy and triumph, were abundantly displayed. Admiral Lefort and the gallant soldiers who had fought on board his vessels headed the procession. Marshal Sheremetof, Gordon, Schim, and the other general officers, took precedence of the Czar; the prisoners of war followed the army; and, lastly, came a chariot bearing the traitor Jacob. By his side was erected the gallows on which he was to be immolated to the fury and indignation of the conquerors.

In the meantime the friendship between the Czar and his Admiral steadily increased. The influence which the latter was acquiring over his imperial master has been reckoned among the great benefits rendered by him to Russia, and certainly many a boyar's head was saved by his courageous interference. In the fits to which Peter was subject, the presence of his consort Catharine would sometimes be found useful in restoring him to tranquillity ; but when the demon of rage had seized upon him, Lefort, and only Lefort, could dare to recall him to reason. Then even the trembling Czarina would fly from him and implore the services of the favourite.

Shortly after his arrival in Russia, Lefort married a young lady of high family and large fortune. The Czar built him a superb palace at his own expense, by this and other examples seeking to create in his nobility a taste for solid architecture. After the death of his mother, Lefort sent for his father and sister to come to Russia. Peter received them with the greatest courtesy, and treated them as his private friends ; nor was Lefort himself wanting in the tenderest affection to his aged parent. All the instants he could snatch from the important and fast-increasing cares of government were devoted to soothing his infirmities, and, like the Chancellor of England, Sir Thomas More, he never undertook an affair of moment without first seeking his blessing.

Lefort was already prime minister and commander-in-chief of the Russian forces by land and sea, when, in 1697, the new dignity was bestowed upon him of ambassador and plenipotentiary at foreign courts. With a suite of two hundred persons, consisting of two other ambassadors, Alexis Gollowin, commissary-general of the wars, governor of Siberia, and Vonitzin Diak, secretary of state, four secretaries, twelve gentlemen, six pages, and a company of his own

peculiar regiment, the Préorbazinski Guards, he traversed Esthonia and Livonia, and made a progress through Prussia and some of the German states, into Holland. To give the history of this extraordinary embassy would be to extract a page from the well-known life of an individual who accompanied it: now a private gentleman, then a pilot, afterwards a carpenter, a smith, a rope-maker, and, lastly, a czar. Everywhere they went they were received with honour. The Elector of Brandenburg made royal preparations for their visit, and their stay with him, which was a little prolonged, was devoted to feasting and pleasure. Here it was that the Czar, for the first and only time of his life, lost temper with Lefort. A slight discussion having arisen over their wine, he drew his sword and called upon Lefort to defend himself. "Far be it from me," exclaimed the latter; "rather let me perish by the hand of my master!" And he assuredly would have done so, had not Von Prinsen, one of the retinue, seized the impending arm and averted the blow. Peter afterwards expressed lively regret at his own want of moderation,—“How,” said he, “do I expect to reform my empire when I cannot even reform myself?” To the credit of Lefort, he never allowed this circumstance to interfere with his love and respect for his sovereign.

When the embassy separated to go to different courts, Lefort remained with the Czar, and had the honour of being the only person present at the interview between the latter and William of Orange.

After the return of Peter the Great to his dominions, Lefort laboured more strenuously than ever at the improvement of the army and navy, and the introduction and propagation of the arts of civilisation. At the same time he confessed to the Czar that his projects were too mighty, and that the already overburdened exchequer would not allow of the great expenditure he proposed; he pointed out, however,

a means of increasing it, by lessening the rates of duty, which were then so high as to put a considerable check on commerce. Peter adopted his advice, and the following year the revenue was doubled.

Too soon for Russia, and too soon for Peter the Great, the career of Lefort was brought to a close. His sudden death of high fever took place at Moscow, in his forty-third year, on the 12th of March, 1699. The news of his demise was immediately carried to the Czar, who was then at Voronez inspecting his naval works. He hastened back to Moscow, and there gave orders for the preparation of superb obsequies. All the foreigners in the Russian capital took part in the procession. Peter himself, on foot and in tears, followed as a lieutenant of the Préorbazinski Guards the convoy of their beloved general. The remains were deposited in the Dutch Reformed Church at Moscow, where a monument was erected to his memory, bearing an inscription in the Latin and Dutch languages.

Lefort has been described as "tall and well formed," having "a happy countenance, a conciliating manner, a persuasive tone." Never, perhaps, was a special favourite of a monarch more universally and cordially that of the nation than Lefort. Foreigner and innovator though he was, his talents and goodness exacted esteem and regard even from the bitterest enemies of Peter and his foreign reformers. The magnitude of his services to Russia has been admitted on all hands; some have gone so far as to maintain, that without him Peter would never have earned the title "Great," nor Russia have risen from its barbaric lethargy.

H. C.

MODERN GREECE.

DURING the first quarter of the present century Philhellenic associations were formed in France, Italy, Germany, Spain, and America, for the purpose of aiding Greece with the wealth and talent of civilised nations. Thirty years ago representatives of all these nations were enrolled under her banner, and were fighting for her liberty. The self-denial they evinced, the sacrifices to which they submitted, the energy, military skill, enlightened and disinterested sympathy, they displayed, sufficiently proved that they were instigated neither by ambition, religious fanaticism, nor any sordid motive. Lord Byron, who fell a victim to the cause in the marshes of Missolonghi; the Count Santorre di Santarosa, the minister of state, who having become a soldier, died fighting on the rocks of the Sphacteria; numbers of distinguished men, illustrious exiles from Italy, France, and Spain, veterans from the ranks of Napoleon and Wellington, volunteers from America, men of science, men of arms, men of feeling, all hastened to the scene of action, and did homage to Greece, the fatherland of wisdom and of heroism.

This romantic feeling, however, like all things human, soon passed away. The cold calculations of politics replaced the fervent aspirations of poetry, and all that remains of so much activity is that new kingdom which constitutes Modern Greece. Scarcely had another quarter of a century elapsed since the foundation of the kingdom, ere the sympathy which its people had excited, by their patriotic defence, became also less enthusiastic, and finally almost disappeared. The glory acquired by Greece during her warlike struggle had not been followed by any noble qualities during the peace which succeeded, and the utter incapacity evinced in civil affairs partly obliterated the

remembrance of her military ardour. If Greece has lost the friendship of her early admirers, she has little right to complain—that is, if a free people is chiefly responsible for the progress, or the premature decay of their national institutions.

Greece has a constitutional government, but how is it carried out or respected? The elections are carried on amidst military violence and overbearing influence, and are invariably stained by crimes which remain unpunished. The consequence is, that the Chamber of Deputies contains representatives at whose previous history English readers would stand aghast, and regarding whom, were truth no libel, terrible tales could be told.

It cannot, however, be said that the intellectual condition of the people is so low as to justify their moral degradation. There is not, perhaps, in Europe a nation which can surpass Greece in natural individual capacity; nor a state where education is more diffused, better organised, or more richly endowed with institutions. Primary instruction is compulsory; the smallest village has its school; the masters and mistresses are trained in normal schools; the primary schools prepare for the gymnasiums, and the gymnasiums for the universities. There are chairs for forty professors, some of whom are distinguished scholars from the German universities; there are, moreover, special schools of theology, tactics, agriculture, and the fine arts; and the universal desire to profit by these advantages is so ardent, that it would be a most honourable characteristic of a people if, to this love of knowledge, they also added a more healthful moral tone. On one occasion, when the king made a journey through the provinces, all classes made but one petition, which was, that each district might have schools and every kind of educational establishment. One fact, which strikes the observation of every stranger in Athens, is the number of young men, who having left the primary

schools of the provinces, and not having the means to attend the gymnasiums or universities, engage themselves as servants on the condition of having four hours' leisure each day for study. Hence it is not uncommon, in visiting the classes of the universities, to see, labouring most diligently among the other students, the servant who a few hours previously had been arranging your apartments. They live with extreme frugality; a piece of bread, a small portion of cheese, with two or three dozen olives, constitute their daily repast, and they seldom eat meat, excepting two or three times a-year, during the great religious solemnities. This inordinate desire for knowledge, however, rather tends to increase the miseries of the country. Young men who would have been prosperous farmers or thriving artisans, if they had been contented with the position in which they were born, crowd the public offices seeking for employment, to obtain which they submit to any humiliation, or obey the arbitrary dictation of a minister, to whom they become the mere creatures, and with whom they are sometimes obliged to divide the salary assigned to them by law. For this they expect afterwards to be allowed without opposition to compensate themselves by illicit and fraudulent means. This corruption surprises no one, for the ideas and habits of the people have caused it to be regarded as a natural, if not an inevitable result of the system. A consular agent once said, "My employment has, for the last twenty years, been wrested from me triennially, simply because some one else had bought it, and each time I have been obliged to repurchase it. Thus we continually dismiss each other, and are dismissed in turn. The ministers fleece us, and we are obliged to fleece our dependants, so as to be prepared for every emergency." In vain the press denounces these enormities, for public opinion, accustomed to the system, regards it with indifference. In fact, both king and ministers act with

impunity. Hence journalism, although comparatively more active even than in England or America, is of no avail.*

With the exception of philology, ancient and modern, on which there are some excellent writers, the literary activity of the nation is chiefly confined to translations of romances, or of a few scientific works. Nor, in the country of Phidias and Praxiteles, are the arts more thriving. The private houses of Athens are extremely mean in appearance, fragile in material, and generally inconvenient. The city, which in 1827 was composed of about one hundred wooden huts placed round the hill of the Acropolis, has been extended without order, taste, or hygienic forethought. The Church, which has squandered so much public money, has made an unsuccessful attempt to revive the Byzantine style of architecture, instead of imitating the pure Doric form, the models of which are so perfect and so near at hand. The royal palace resembles a huge whitewashed barrack, while the university is a mixture of architectural orders, in the selection of which neither good taste, harmony, nor the inspiration of the sky of Greece, has been regarded. From Athens the rich caves of Pentelicon can be reached in two hours, while the magnificent marbles of Paros are within a day's sail; yet 'tis vain to seek for traces of these noble and rich materials among the public or private buildings of the city.

A special characteristic of the Greek is an overweening pride in the name of Hellene; he rejects the designation of Greek as much as the Osmanli that of Turk. Their contempt for the cultivation of the soil is an heir-loom descended from the Spartans, who imposed this toil on their Helots.

* The city of Athens has not more than from thirty to thirty-five thousand inhabitants, and yet there are, beside seven monthly and bi-monthly literary and scientific journals, twenty newspapers, four of which are published twice, and the remainder once a-week. There are sixty-seven printing-offices in Athens.

The modern Greeks leave these labours to their women. During an autumn excursion of three months in the Peloponnesus we saw none but women engaged in the fatiguing toil of gathering in the currant harvest. They had their infants with them, which they deposited on the ground while they worked. An old man might occasionally come to help them, and sometimes, though very rarely, a dark *palikari* might be seen stretched beside his gun, lazily smoking his cigarette as he carelessly watched their laborious exertions. The Greek countrywoman appears to be perfectly resigned to this system, although the wrinkles of age furrow her brow at an early period. The men, proud and ardent, ill brook the restraint of a quiet existence. Gun on shoulder, a yataghan, a pistol, and a poisoned dagger in their belt, they seek the mountains. The beard, long and untrimmed, indicates either the death of a relation, or a vendetta to be accomplished. Once or twice a-week they return to the bosoms of their families to spend a day or night, and disappear on the following day-break. Sometimes they are absent for weeks together, until, perhaps, some fine day news is brought to the wife that her husband has been assassinated, or will shortly be condemned to the gallows. Such is the life of the *palikari*, or bravo of Greece.

The Greek is religious from policy rather than sentiment. Religion and nationality are blended in his mind as cause and effect, and had it not been so he would ere this have suffered himself to be naturalised as a Turk. But the Greek priest, who from the ruins of ancient temples furtively gathered the persecuted Christians, whom the conquerors had robbed of their wives, children, and property, quoted consolatory texts, and in their rough language taught them to resign themselves to the oppressor until the day of retribution and the hour of vengeance should come. Thus the religion which enjoined them to suffer, also prepared them to die for their country. The cry of the Greek revo-

lution was,—“ Ζήτω ὁ σταυρός, Ζήτω ἡ ἐλευθερία, Ζήτω ἡ Ἑλλάς!” (The Cross, Liberty, Greece!) At the present time the oppression by the Turks from religious fanaticism in modern Greece, being an historical recollection and not an actual fact, proselytism is forbidden, probably on account of the ignorance of the priests, who, if discussion were tolerated, would easily be overcome by their Catholic or Protestant adversaries. Hence religious missions have more liberty of action, and greater chance of success in Turkey than in Greece, where the people are jealous guardians of their creed, not for itself alone, but because they hope to use it successfully for the aggrandisement of their nation. In other respects they are essentially tolerant, and see without surprise a Catholic king and a Lutheran queen in the Greek churches, united with the primates of the empire during the great religious solemnities.

The recluse of the Greek mountains is an object of veneration to the mass of the people, and above all to the roving *palikari*, who, in his excursions frequently knocks at the hermit's door to ask shelter from the passing storm, or to deposit within the precincts of the hermitage a portion of the spoils which he had probably seized from the traveller only a few minutes before. This act, according to the brigand's notions, will at the hour of death procure pardon for the sin. These anchorites are inoffensive creatures, frequently animated by a spirit of holy contemplation, which, added to their venerable age, and their miserable and penurious mode of life, invests them in the public mind with almost superhuman attributes. The ambition is to be venerated and adored by the people. The day in which one shows himself in a neighbouring village,—and they have the tact to do so only once or twice a-year,—men, women, children, and even the sick, desert their homes to see the holy man, to touch his dress as he passes; and he who succeeds in obtaining a portion from the saint's hands is considered to

have obtained the blessing of Heaven. When a hermit dies he is canonised by the public opinion of the seven or eight neighbouring villages, and the objects which belonged to him are sought for as holy relics to cure the sick, or to avert storms and earthquakes when any variation in the atmosphere suggests the danger of such dreaded phenomena.

The *coloyeri* (good old men) are monks who live in communities, and in no way differ from the numerous Catholic religious orders, except that they are not distinguished by peculiar institutions or customs, nor yet by the form or colour of their dress. The Greek monasteries in the country are usually built upon fine eminences, in healthy and agreeable localities. Many of them are strongholds, and resemble castles; some of these have acquired an historical importance from the formal sieges they stood against the Turks during the war of independence. The number of monks in an establishment is never less than five. Some are, however, very numerous. The monastery of Megas-pilion, situated on the hill of the same name, in the midst of the Gulf of Lepanto, is a grand solid edifice, almost Cyclopean in its proportions. It is inhabited by 200 monks, and could easily accommodate 500. Each of these edifices has a number of apartments for the use of strangers, to whom, for a limited time, hospitality is generously and politely afforded.

It now only remains to speak of two classes of Greeks who, better than any other, understand the interests and the actual wants of their nation, and whose attachment to their country may save her from many of the evils to which she is now a prey. These are the naval and commercial classes, by far the most honest, and who are as independent as circumstances will permit. These show proofs of the prodigious activity and proverbial acuteness of the Greek mind turned to the best account. No sooner was piracy put down by the united exertions of civilised nations, than an extraordinary development of the Greek mercantile marine took

place, and from that lawless profession they seem to have derived their remarkable skill and daring as sailors. A Greek vessel is unprovided with those advantages of construction, and those instruments and machines, which secure the supremacy of the sea to the English navy; yet the sailor of the Cyclades or the Archipelago braves the tempests of the Mediterranean and the Atlantic with the greatest courage. From the versatility of the Greek character their ideas are susceptible of great modification by intercourse with strangers, while their habits do not change. By sobriety and economy they frequently amass a fortune in a few years, when they gradually give up their private affairs to devote themselves to public business. The parliamentary opposition, which, from the servility of the majority, unfortunately resolves itself into a mere protest from the national party, is constituted entirely of sea-captains. Their rough but independent eloquence alone proves that in Greece generous sentiments are not extinct, although silent.

But if there be patriotism and a true desire for the greatness and progress of Greece, it must be sought among the mercantile classes dispersed throughout the world. Large fortunes are occasionally bequeathed to the nation by merchants, who having begun with nothing, spent their whole life to amass that wealth. True, these sums are greatly preyed upon by the men in power, yet many of the existing institutions of public utility may be traced to the Greek trader's devotion to his distant country. Universities, hospitals, primary schools, gymnasiums, colleges for the education of women, agricultural institutions, military schools, an annual premium for the encouragement of young poets, and other similar foundations, result from the patriotism of merchants, and seem intended rather to prepare the future of a great nation than simply to benefit the small population which at present constitutes Modern Greece. E. F.

LIFE, IN ITS INTERMEDIATE FORMS.

No. IV. (*continued*).

CRUSTACEA.

PERHAPS the most singular of all animal existences, and certainly the most remarkable of the Class to which they belong, are those Crustaceans which constitute the Order EPIZOA, so called from their parasitical habits. The grand principle of economy is so perfectly carried out in Creation, that not only is every spot of inorganic nature turned to account in providing for some existences proper to it, but even the bodies of living animals are made to afford a dwelling-place and a feeding-ground for multitudes of other creatures. The intestines, the layers of muscle, the coats of the eye, the sinuses of the skull, afford in different animals a home for certain creatures of strange conformation, which are found under no other conditions, and are thence called Intestinal Worms, or more correctly ENTOZOA, *i.e.* animals which live within other animals. The gills of fishes, the breathing pouches, the interior of the mouth, and various parts of the surface of the body, become, on the other hand, the residence of another group, the EPIZOA, of which we are speaking.

Though these two groups of parasitic animals are very diverse in zoological rank, or, in other words, in the degree of complexity which their structure exhibits, they merge into each other by imperceptible gradations, so that there are some intermediate forms (as there almost always are on the confines of great groups), which it is very difficult to arrange in either Class, because this would involve their violent separation from near kindred. It must be borne in mind that our lines of demarcation are artificial, though for perspicuity's sake we must draw them somewhere.

One of the most interesting points in the economy of these creatures is the variety which is displayed in their armature. Deprived, for the most part, of limbs, or having these members when present strangely disguised, it was necessary to their existence that they should be furnished with some means of affixing themselves firmly to their prey, and various are the mechanical contrivances which serve this purpose. There is a minute Worm (*Gyrodactylus*) which lives upon the gills of certain species of the Carp tribe, whose adhering disk, when viewed beneath the microscope, is most formidable to behold. It is armed all around its circumference with sharp curved hooks, while its centre is provided with a pair of much larger hooks, all intended to be plunged deeply into the flesh of the unfortunate fish, while the blood is sucked at leisure. In *Caligus*, a creature a hundred times as large as that just named, found on various marine fishes, the object is effected by an array of hooked fangs and pincer-like claws, combined with sucking-disks, while a slender tube pierces the flesh and pumps up the vital juices. *Chondracanthus*,—which looks like a tiny doll dressed up in a long petticoat, fantastically studded all over with curved prickles,—clings to the gills of the John Dory by means of its stout hooked foot-jaws, of which there are three pairs.

More strange still is the furniture of the *Lerneopoda*. Here two long arms proceed from the thorax, which, curving forward, meet at their tips in front of the head, and uniting, carry a knob or button, which being thrust into the flesh of some miserable Shark or Salmon, maintains the needful hold for the robber's operations. A similar creature (*Achtheres*), that infests our common Perch, has a contrivance more elaborate still: the two arms unite as before, but the knob at the point of junction now becomes a bell-shaped cupping-glass, beset within its rim with an array of recurved hooks.

Hanging by means of this grappling-iron to the gums of the fish, it allows its body to swing without fear or danger of dislodgment, in spite of the currents that are perpetually flowing through the mouth and gills. In some very long and slender forms constituting the family *Penelladæ*, parasitic upon the bodies of fishes, as the Sprat and Anchovy, the entire head is plunged into the tissues of the prey, sometimes into the eye, and is retained there by a curved prong which proceeds backward from each side of the head, exactly on the principle of an anchor. An additional firmness is secured to the *Lerneæ*, which infests the gills of the Cod, by the prongs or flukes of the anchor being furnished with processes shooting off irregularly on all sides, which, being imbedded in the flesh, like the roots of a tree in the soil, resist all opposing influences to drag it away. This form is one of the most *bizarre* of the whole, for besides this strange rooting head which is concealed, the exposed body resembles a twisted sausage, without limbs, to which the external ovaries hang, like rolls of thread twined loosely together.

Every ditch and pool is tenanted by tiny nimble creatures, which move through the water by a succession of little leaps, whence they are called Water-fleas. Sometimes the ponds swarm with them to such a degree that the fluid contents seem not water but blood, or other strange liquid, according to the colour of the little animals. These belong to the Order ENTOMOSTRACA, and, though small, many of them being undistinguishable without microscopic aid, they are highly curious. Many of them are enclosed either wholly or in great measure in a shell, which takes the form of two convex plates, either soldered together down the back, or united there by a hinge, leaving the opposite edges free for the protrusion of the head and feet. The close resemblance of the latter (*Cyprididæ*) to the bivalve shells of MOLLUSCA is remarkable.

In general these little animals have but a single eye in the middle of the forehead, which is of large size in proportion, round, and generally of a brilliant red hue, glistening like a ruby, so that it furnishes a beautiful study under the microscope. In the common Water-flea (*Daphnia pulex*) the eye is bluish black, evidently composed of about twenty crystalline lenses, and though quite included within the shell, its motions, which are quick and partly rotatory, can be distinctly perceived.

For the protection of the eggs in this genus there is a peculiar provision. They are proportionally large and few in number, and when laid by the mother are not committed to the free element, but are deposited in a sort of chamber between the valves of the shell, above the animal's back. Here they are carried until the young are hatched; and even for some days more the little ones avail themselves of the same safe retreat, until they are strong enough to get their own living.

For the most part in this Order, however, the eggs are excluded in two large oval bags, which hang behind the parent, one on each side, these bags (external ovaries) being frequently each as large as the whole animal. When matured the young escape, and the sacs slough away, to be soon replaced by a new pair.

Some of this race are not enclosed in shells: the genus just alluded to (*Cyclops*) and its fellows have the upper parts protected by a large buckler and hollow horny rings, much like the armour of the Shrimp and Lobster, and some are deprived of everything answering to a shield. Of the latter sort, which is, however, the exception to the general rule, is the Brine-shrimp (*Artemia salina*), of which an interesting account appeared in "Excelsior," vol. i. p. 229.

The hiatus between these "Insects in Shells," as the appellation ENTOMOSTRACA signifies, and the true Crab, is

occupied by an immense host of creatures still small, but generally of a size above that of the Water-fleas. They are commonly jointed throughout, without any carapace or buckler on the fore parts of the body. The terrestrial species are arranged here, of which the garden *Armadillo*, or Woodlouse, already alluded to, is a familiar example. They approach the nearest of the CRUSTACEA to the true Insects. Many of them have the faculty of rolling themselves more or less completely into a ball, like the hedgehog, and apparently for the same purpose, of opposing a passive resistance to annoyance. The Orders ISOPODA and AMPHIPODA, distinguished *inter se* principally by the structure of the limbs, are composed of these forms, which, though they are of various interest, we are compelled summarily to dismiss.

And thus we come to the most highly endowed representatives of the Class, one of the most remarkable characteristics of which is that their eyes, instead of being imbedded in the head, or at most immoveably seated on the surface, are placed at the tip of horny, jointed stalks, which can be swayed about in various directions, greatly increasing the animal's range of vision. Hence this Order is called PODOPHTHALMA, or Stalk-eyed Crustacea.

The strangest of these are the Glass-crabs (*Phyllosoma*), animals of extraordinary beauty, found abundantly in the tropical oceans, swimming at the surface far from land. One species has been recently taken on the British shores. They look like an oval plate of the purest glass, with a broad tail and slender divergent limbs, so transparent and colourless that they can scarcely be detected but for the eyes, which are of a lovely blue hue, and are carried at the end of long stalks.

Our common Prawns (*Palæmon*) are beautiful examples of pellucid structure; and when alive, they form, from this circumstance, from the dark-brown lines with which they are

adorned, from their elegant shape, and sprightly, graceful motions, very interesting objects in a marine Aquarium ; the more so as they are among the most easily kept, readily reconciled to captivity, and keeping themselves in health and condition, without trouble to their possessor, on the animalcules and garbage that else would accumulate on the bottom. Their manner of feeding, by the hand-like use of the long slender claws, which seize the food and present it to the mouth ; the brushes of hair with which some of the feet are fringed, serving as cleansing organs, and the effective way in which these are made to reach all parts of the body, and to keep it scrupulously clean ; the flapping of the false feet beneath the abdomen in the process of ordinary swimming ; the occasional sudden stroke upon the water of the broad tail-plates, when the creature is alarmed, causing it to shoot backward with the rapidity of thought to the distance of several inches ; the structure of the eyes, and the singular reflection of a candle from their interior, like the flash of a policeman's *bull's-eye* ; and even the internal organs, the pulsation of the heart, and the passing of the food, as masticated, into the stomach, can all be seen and studied to advantage in these parlour pets. An hour's observation on their organisation and their manners, if our readers have the opportunity of watching any parlour Aquarium, would furnish a most interesting and instructive lesson in physiology.

The broad plates which expand like a fan at the tail of the Prawns and Lobsters, form their great resource for swift and sudden locomotion. The common Lobster is said to be able to dart back by this means thirty feet, with the fleetness of a bird on the wing ; and when we think of this feat we must not forget the great density and resistance of such a medium as water, in which it is accomplished. The existence of these plates, and the great development of the abdomen which carries them, distinguish these from the

proper Crabs, which have no terminal plates, and in which the abdomen is reduced to a thin flap bent under the body and pressed close to it, except when it is forced out of place by the spawn, which the females deposit between it and the thorax.

Some of the Crabs have the power of swimming, but it is by a very different mechanism from that of the Lobsters; and it affords us one of the many examples which the naturalist is constantly meeting with, of the infinite resources of the wisdom of God in creation. In the common eatable Crab (*Cancer pagurus*), with the exception of the foremost pair of limbs, which are expanded into powerful grasping claws, all the feet are terminated by a short sharp-pointed toe. But we have some species common on our shores (*Portunus*, &c.), in which the hindmost legs have the last joint dilated into a broad, thin, oval plate, which being fringed, as are also the other joints, with stiff hairs, constitute oars, and being worked in a peculiar manner, row the animals swiftly to and fro, at the surface or through the deeps. Others, which are more strictly oceanic, display the same structure in a yet higher degree.

It is impossible to walk along a beach by the edge of the tide without observing many univalve shells running to and fro, with an agility far greater than that of the sluggish mollusks, whose houses they originally were. On looking closely at them, we see the antennæ, eyes, and claws of what seems a minute Lobster projecting from each. If we take it up, the jealous little rogue withdraws into the house, pulling his legs after him, and claps one stout claw upon the other, in such a way as effectually to bar the intruder's entrance. We may smash the shell upon a stone, and thus execute a forcible ejection (it is no more than he deserves, for the house is not his own, and he pays no rent), and then we see that the hinder parts are curiously distorted and

twisted, to fit it for tenanting a spiral shell. It is not a Lobster at all, but a Hermit-crab (*Pagurus*), and this is the mode of life for which it is created. The abdomen is covered with a soft skin instead of a shelly crust, and therefore needs protection; and this is provided by the instinct which teaches the Crab to search for some empty univalve shell of suitable size, and to appropriate it for himself. Some laughable scenes occur when the old house becomes too strait for him to live any longer in, and his growing bulk compels him to look out for a new lodging. Like a sound philosopher, he never loses grasp of the old shell till he has found a better.

Tropical countries have many species of Crustacea, which are denominated Land-crabs from their terrestrial habits. Those of the West Indies (*Gecarcinus*) make burrows in the soft earth, whence they wander by night for forage. Once in the year they are said to come down from the mountains in troops, surmounting every obstacle in their way to the sea; after depositing their eggs in the water they return much enfeebled. Of the habits of an East Indian species (*Thelphusa cunicularis*), Bishop Heber thus speaks in his interesting Journal: "All the grass through the Deccan generally swarms with a small Land-crab, which burrows in the ground, and runs with considerable swiftness, even when encumbered with a bundle of food as big as itself; this food is grass, or the green stalks of rice, and it is amusing to see the crabs sitting, as it were, upright to cut their hay with their sharp pincers, and then waddling off with their sheaf to their holes as quickly as their sidelong pace will carry them."

And since they are so anxious to get out of our sight, we will take the opportunity to make our bow to them and the whole tribe of Crabs and Shrimps together.

P. H. G.

ENGLISH LETTER-WRITERS.

JONATHAN SWIFT.

SWIFT's position in literature is curious. Every one knows that his writings had immense influence when they appeared, and for many years afterwards. It would seem like a literary heresy to dispute Mr. Massey's assertion (in the ninth chapter of his recent history), that he excels every English author in humour. Yet who reads or quotes his books now? Like Gillray's caricatures, they are spoken about, rather than known. The reasons are obvious. Many are written upon topics which have lost every claim to interest, and many are too offensive for modern eyes. It seems hardly possible that such matter as some of his writings contain should have been tolerated, even by our fathers; and we have ample cause to rejoice in the tone of our most ephemeral literature, when we compare it with theirs. Prudence does not now pass for wit, nor abuse for criticism; satire is no longer scurrilous, nor jesting obscene.

The personal history of the "great Dean," so far as we know it, is a terrible one; the more so, perhaps, because the secret causes of his misery are unknown. A black cloud of mystery and horror, which the most malignant of his enemies and the keenest-witted of his critics could never penetrate, hung always over him. If, however, we speak only of what is known of his life and character, we still say that his biography is among the saddest, and most terrible, and full of instruction. A man of amazing talent and boundless ambition, his career was unsuccessful. An intellectual privateer, his prizes mostly *escaped*. Popular and disappointed;—loved and wretched;—admired, dreaded, raging, and lonely, he towers among the genteel *dilettanti* of his time, a repulsive phenomenon. His harsh and swar-

thy features seem ever scowling. His eyes, which Pope said, were "azure as the heavens," gleam with scorn and malice. He never laughs. He hates children. He insults the beggars he relieves. He scorns and detests mankind. He curses the day when he was born.

Yet, we say, he was loved. It was even so;—loved with a passionate and lavish devotion which has been rarely equalled and never excelled. The old poet describes Alcestis as dying for Admetus; but then *he loved her*. More than one victim died for Swift. There was something in that sour and gloomy nature which attracted love, and pity, and forbearance. But he gave no true affection back. The fond creepers died, which twined themselves about that stem. Like the magnetic rock in the fable, which drew the iron fastenings from all ships that came too near, and none could escape that once approached, there seemed to be some fascination about him which had the same results. The attraction was irresistible to those who came within his range—and it was ruin.

He was born of English parents, in Dublin, on the 30th November, 1667. His father died before his birth, leaving Mrs. Swift in so destitute a condition that she could not defray the expenses of the funeral. An uncle, who was reputed to be rich, provided the young orphan with a trifling pittance for his support, and he was sent to an endowed school at Kilkenny.

After a boyhood, during which extreme penury was continually acting (and most disastrously) on a naturally morbid temperament, he went, at fourteen years of age, to Trinity College, Dublin, where, however, his career was in no wise promising, or even satisfactory. Very poor still, and very proud, he passed much of his time in loneliness and gloom. He read a great deal, but would not read the books appointed. He obstinately refused to follow the routine studies

of the place. The consequence was, that he was plucked when he went up for his Bachelor's degree. He made a second attempt, and succeeded in passing; but his certificate, as he himself states, though the document does not do so, was granted by special favour, and not earned by merit. This was to confer disgrace, and not honour. He seems to have become reckless, disgusted with all study, and as wild as his poverty would allow; until, at length, his irregularities subjected him to two years' suspension.

Shortly after the expiration of this time, the uncle who had hitherto supported him, died, and was found to have ruined himself and his family by his speculations. The trifling sum which Swift was accustomed to receive from him was, consequently, not forthcoming; and, in the twenty-first year of his age, the youth, after having been always poor, found himself destitute.

This was in 1688. He left college and crossed to England. He walked from Chester to Leicester, where his mother was living on charity, to see her, and ask her what he should do. She could recommend nothing, except that he should apply to Sir William Temple, whose wife was distantly related to her, and who was well known to be a kind-hearted and charitable man. He did so. Temple received him into his house at Shene; and when the Glorious Revolution was happily consummated, and his seat at Moor Park no longer lay between two hostile armies, he removed thither, and took young Swift with him.

Here the Bachelor of Arts was aroused to such a sense of shame at his ignorance, that he began to study in earnest; devoting eight hours a-day to this purpose. At first Temple did not like him. His moroseness, irritability, selfishness, and pride, were distasteful to the refined courtier. But ere long he overcame this dislike by his quickness of observation and ready wit. Temple became his friend, and retained him for some years at Moor Park as his guest and companion.

King William frequently visited Sir William Temple, and Swift sometimes attended on the King. William offered him the command of a troop of horse, — doubtless thinking the employment an appropriate one for the wild Irish lad. But Swift was not like that Bachelor of Arts in the “Tatler,”* “who came to town recommended to a chaplain’s place, but, none being vacant, accepted that of a postillion,” — and he refused.

His majesty also condescended to teach him how to cut asparagus the Dutch way; and how to eat it, too. Many years afterwards, when he was a great man, and as much a terror in society as Dr. Johnson ever was, he entertained a Dublin alderman, and at dinner helped him to asparagus. The alderman soon asked for a second supply. Swift pointed to his plate. “Sir,” he said, fiercely, “first finish what you have there!” — “What, sir! eat my stalks?” — “Ay, sir, King William always eat the stalks!” Scott says that the alderman narrated this anecdote to Dr. Leland. “And were you blockhead enough to obey him?” demanded the proud and pompous historian. “Yes, doctor,” was the reply. “And if you had dined with Dean Swift, *tête-à-tête*, faith, you would have been obliged to eat your stalks too!”

But Swift soon found that he had no hope of really profiting by William’s patronage. A captaincy of horse was not his ambition; and the science of cutting and eating asparagus was not of much value to a man who subsisted on charity. He began, therefore, to solicit Temple to push him forward. This his patron showed no anxiety to do. He had fallen into ill-health, and Swift was a useful and amusing companion. But, at length, in consequence of his urgency, he offered him a situation worth 100*l.* a-year. This, however, was also far below the scholar’s ambition, — and instead of evincing any gratitude, he took offence at the offer. He quarrelled with his benefactor; refused the situation;

left Moor Park ; went to Ireland ; took holy orders, and — thanks, after all, to Temple — obtained the prebend of Kilroot, which was worth the same income.

He soon grew sick of the drudgery and obscurity of his new life. Finding that Temple was as willing to forgive and receive him back again as he was to return, he threw up his cure, and in 1695, we find him once more at Moor Park, where he remained till Temple died in 1699, writing the “ Tale of a Tub,” and “ The Battle of the Books,” editing Sir William’s compositions — and laying up in store for himself misery and remorse. It was during this period that he began that extraordinary but systematic course of action towards young and beautiful women which has covered his name with infamy, and which some of his biographers have endeavoured to account for by the supposition that the man was already mad. We see no reason to suppose this. There was too much method in his conduct. Madness never behaved itself so sanely.

The first of those unhappy beings who learned to love, and then, after weary years of disappointment, to deplore they ever knew him, was Jane Waryng—Varina. She was the sister of a college friend. She had 100*l.* a-year. He had corresponded with her for some time, when, in 1696, being as far from advancement and fortune as ever, he wrote her an offer of marriage, which is still extant. Loving him very truly, she yet prudently controlled her own inclinations, and asked him to wait a while, until he could support an establishment. He consented, under many protestations of sorrow and impatience ;—he was then endeavouring to engage the affections of another.

Four years elapsed, during which he continued to correspond with her. At the end of that time, as he had then got on in the world, and had more than 400*l.* a-year, she seems to have intimated to him that he might now fulfil his engagement. He wrote that his income was not more

than 300*l.*—perhaps less. He told her that any young man of sense could get a larger fortune by marriage than she had ever pretended to. He showed a sudden disinclination to carry out his promise. But he had not the courage to tell her so. He pointed out at some length what he expected and required in a wife, making the picture as disagreeable as he could, and then said that if she was content to obey these requirements, or, in other words, become something more abject than his slave, he would still marry her,—provided her health was good, and *without regarding* whether her person was beautiful, or her fortune large;—a letter so brutal, heartless, and unmanly, that she, of course, put a stop to further correspondence. We do not believe that any other eminent man among English Letter-Writers was ever guilty of such a disgraceful composition as this.

He pretended to love Varina, and when assured that she was really *his*, he whistled her down the wind. While he was amusing himself in deceiving her he was acting as tutor to a young girl, daughter of a lady who (like himself) lived at Moor Park on Temple's benevolence;—Esther Johnson;—Stella;—and doing all in his power to induce her to fix her young affections upon him. Most unfortunately for herself, he succeeded. The beautiful child—for she was then no more—learned to love, and fear, and bend every thought towards pleasing the rough, black-browed man of thirty, with the wondrous flashing eyes, who was so coarse, and scornful, and harsh to others, but who had such gentle and winning looks and words for her. She gave him the whole of her little heart. She grew to love him with all the fervour and *trust* of a true woman. He, in return, spoiled her existence. Varina, fortunately for herself, after seven years' torment, escaped from the cruel sportsman, though with broken health and blighted affections:—he kept Stella in the toils till she died.

In 1699 he went to Ireland as chaplain to Lord Berkeley.

His new patron did not advance him so rapidly as he had promised, so he quarrelled with him. On this Berkeley, in terror of his powers of satire, gave him the rectory of Agher, and the vicarages of Laracor and Rathbeggan.

Stella followed him to Laracor, accompanied by Mrs. Dingley, an elderly and respectable lady in reduced circumstances. It is thought that Swift had promised to marry his young and beautiful pupil, who was now independent, Temple having left her a small estate. This is not unlikely. We know how he had promised to marry Varina. But, if so, he did not do it now. He gave out that he was merely Esther's tutor and guardian. When he was absent from his parsonage at Laracor the two ladies occupied it; but when he was at home they lived in Trim, either with Dr. Raymond, the vicar of that place, or in lodgings. That there might be no pretext for scandal, he was never alone with Stella. Mrs. Dingley, or some other person, was invariably present. Mrs. Dingley was not a woman of much intellect, as Swift's well-known verses on her show; but she served the more admirably as a chaperone, as she did not interfere with the conversation—

“ If you tell a good jest,
And please all the rest,
Comes Dingley, and asks you ‘ What was it ?’
And before she can know,
Away she will go,
And seek an old rag in the closet.”

These, and other precautions against misrepresentation having been adopted, the “ Tutor ” gratified himself with almost continual intercourse with the lovely girl. She was now eighteen, and as sensible as she was beautiful. Ere long she had an offer of marriage. This Swift induced her to refuse, though he said nothing of marriage himself, as she expected and hoped he would. But she had resolved to

give up all for him, and so she went on loving him, living in hope, and sacrificing herself.

He was not, however, content to spend his days as the mere Vicar of Laracor, even in such pleasant society. His ambition looked far higher than this, as it had looked higher than the command of a troop of horse. He had extorted his present livings from Berkeley by fear of his powers of sarcasm—he began to think that they might push him on still farther. He wrote some political tracts, which met with great success. This encouraged him, and confirmed his idea; and during the next few years he was continually in London. His aims were solely selfish, and he deserved to fail. But he did not miscalculate. The vast talents which he possessed, and which were now, for the first time, developed, raised him to a temporary position of greater real power than any literary man had ever occupied before. They made him many friends,—and hosts of enemies.

In 1704 he published the “Tale of a Tub”—that masterpiece of indecorous humour and irreverent theology. The Whigs were in power, so he declared himself on their side, and he served them until 1709 by satires, pamphlets, songs, pasquinades, and all the other artillery then used in political warfare. But his labours were not rewarded by the promotion which he desired. So, in 1710, when the wicked Sacheverell preached them down, and the Tories reigned instead, he changed sides.

And now commenced the most wonderful part of his career. He almost instantly transcended all rivalry. By incessant attacks on his late allies, and unwearied defence of his new friends, he positively upheld the ministry. They soon found that his assistance was invaluable. His fierce invective, his scorching sarcasm, bore down all the literary opposition which could be brought against him. After a while, no one was found hardy enough to contend with him.

He was master of the political field, and ranged at will. As Mr. Phillips says—he *reigned*. He was the government; patronage was at his command. He eagerly distributed it to literary men, whatever their politics; and Steele and Congreve (both Whigs) owed their good fortune under the Tories to Swift.

But, though he gained honours for others and fame for himself, he still failed to obtain the promotion which he desired. The wish of his heart ever since he took orders, and the aim of all his late exertions, had been an English bishopric. This he could not get,—he could not even get an Irish one. The author of the “Tale of a Tub” was unfit to hold any office at all in a Christian church, and was especially unfit to be one of its dignitaries. But this was not the cause of his failure. He had held up Queen Anne’s favourite, the Duchess of Somerset, to contempt for her red hair! And her malice did what his mere unfitness would not have done. When the see of Hereford fell vacant in 1712, his friends tried hard to obtain it for him. Ministerial gratitude really taxed itself to the utmost. His eminent services, his gigantic talents, were pleaded. But all was in vain. As Mr. Herbert says,—

“Wit’s an unruly engine, wildly striking
Sometimes a friend, sometimes the engineer.”

The Duchess of Somerset influenced her royal mistress to pass him by; and he lost the great prize on which he had set his heart, because he had satirised a woman’s hair! Enraged and disappointed at his failure, yet utterly powerless to force compliance with his wishes, he pressed the Ministers to do something for him; and when they made him an offer of the Deanery of St. Patrick’s, he sullenly took it, though it was far below his expectations, rather than get nothing. In 1713 he retired to his new post, more sour and morose than ever.

He had, however, other causes for irritability than failure. His ambition had been humbled, and that was, doubtless, very bitter to one of his temperament. But if he had been a genuine man, and had done what was right and manly in his private life, he would have found comforts and supports there which would have far outweighed all failure. He had not done so. The sweet sympathies of the home-hearth did not await *him*. He went, in his mortification and rage, to loneliness and gloom. His domestic life was miserable. He saw Stella; but he was even more miserable when he did so than when he was alone. His wretchedness might make us pity him; but yet it was thoroughly deserved.

During his frequent absences from Laracor, he had corresponded copiously and incessantly with Stella. He narrated everything he did and saw, and that occurred to himself or his friends. His Journal to her is almost a history of fourteen years. His manner and tone were most affectionate. He talked and prattled with his beautiful distant pupil. More caressing, loving language was never written. Nicknames, little fond expressions of endearment, abound. Even old Dingley came in for a share of the stern man's softer and kinder words. He seemed to long to keep Stella's love fixed on him; he made it his business among his fierce struggles for promotion, to retain her little fond heart. If we gave any extracts from his Letters, which we cannot do, we should take them from what he wrote to Stella at this time.

But "all was false and hollow." During these very years, he had made acquaintance with another Esther, younger and more talented than Esther Johnson, and, unfortunately for herself, more ardent and impetuous of disposition. Swift's acquaintance with Esther Vanhomrigh (Vanessa) seems to have commenced about 1709. Whether her youth, or her fortune (for she was rich), or her talents, or her

undisguised admiration of himself, attracted him, cannot be known. What is known is, that ere long he laid himself out to win her affections, as he had done those of Varina and Stella,—that he succeeded only too well,—and that he blighted her existence also.

When he returned to Ireland, therefore, after the final annihilation of his hopes of a bishopric, he could not have had much pleasure even in Stella's society, for he had this secret to keep from her. And his perplexity must have become extreme, when, soon after he had settled in his Deanery, and Stella had come with Mrs. Dingley, to live near him in Dublin, Vanessa made her appearance there also. An *éclaircissement* stared him in the face, which the man who held every one about him in terror had not the moral courage to encounter. So he concealed his duplicity, and maintained his supremacy over the hearts of both as he best could.

At length, however, the miserable drama had to come to a climax. Stella's health began to break down. Sixteen years of hope deferred had made that faithful heart sick almost to death. Seeing that she could bear no more, and yet not wishing or not daring to resign Vanessa, Swift consented to marry Stella, on condition that their union should be kept a profound secret, and that they should continue to live in the same cautiously separate way as heretofore. To these monstrous terms Stella agreed, and they were married by the Bishop of Clogher in 1716.

"Immediately subsequent to the ceremony," says Scott, "Swift's state of mind appears to have been dreadful. Delany, being pressed, said, that about the time the union took place, he observed Swift to be gloomy and agitated; so much so, that he went to Archbishop King to mention his apprehensions. On entering the library, Swift rushed out, with a countenance of distraction, and passed him without speaking. He found the Archbishop in tears, and upon

asking the reason, he said, 'You have just met the most unhappy man on earth; but on the subject of his wretchedness, you must never ask a question.'"

For some days he secluded himself from every one. What passed in that awful retirement can only be conjectured; but what causes there were for agony, and horror, and remorse! When he returned to society, Stella and Dingley resumed their intercourse at the Deanery, Stella being the manager of his household, although she seemed only a guest. But they were *never* alone together, and their marriage was kept hidden from the world—and Vanessa.

Poor Miss Vanhomrigh does not seem to have had any present suspicion of this transaction. Swift tried to induce her to marry a clergyman who sought her hand, but she rejected the proposal with scorn. He knew not what to do with her. She continued to see him, to correspond with him, to show she loved him in spite of all his hints and coldness, until 1717, when she seems to have become convinced of the almost hopeless nature of her passion, though she knew not why it *was* hopeless, and she left Dublin for her property at Cellbridge. Here the Dean used to visit her, and he would sit for hours with her in a bower in the garden, looking on the Liffey. They read together and wrote verses, and the poor girl always signalled his visits by planting some laurel-trees in her garden. Alas! She thought of laurel crowns for him!—these trees might have suggested for her the poison which he was to administer!

But this part of the drama, too, had to be brought to a climax. In 1720, having lost her sister, and being now absolutely alone in the world, she could no longer endure suspense. She wrote to Stella requesting to know the nature of her connexion with Swift. Stella answered by telling her of their marriage, and then—being after all a disappointed woman, and, perhaps, jealous, too—she sent

the letter of inquiry to Swift. The consequences were terrific. In one of those rages which disease and wretchedness, and, perhaps, incipient madness, made common, he rode immediately to Cellbridge, and burst into the presence of the startled and trembling girl. Seeing the anger and ferocity of his looks, she could scarcely stammer out an invitation to sit down. For his part, he did not utter a word, but flinging down a letter, he turned and left the room, and remounting his horse, galloped back to Dublin. The unfortunate Vanessa opened the packet, and found nothing but her own letter to Stella. It was her death-blow. The poor fond heart broke under the fury of the dreadful man whom she had loved. The moth had rushed right into the flame, and there was nothing left but the brief agony—and death. In a few weeks she was no more.

As for Swift, when he saw what he had done, he once more fled from the world, and spent two months in such seclusion that no one knew what was become of him. This solitary retirement must have been even more horrible than the last. Added to all his angry consciousness of having failed in his plans of self-advancement, he now had the misery of knowing that he had actually killed one of those unhappy beings whose lives he had blighted because they loved him. And he also knew—or at least he had had a distinct presentiment, since his retreat from society in 1716, what his end would be. Walking with Dr. Young and a party near Dublin, in 1717, he once lagged behind the rest. The author of the “Night Thoughts” went back to recover him, and found him gazing earnestly at a noble elm, the top branches of which were withered. Pointing at it, he said, “I shall be like that tree. I shall die *at the top*.”

For two months, we say, he secluded himself from the world. When he returned to society, he seemed more harsh and furious than ever. His lonely tortures had not changed

him for the better. His sorrow had no submission in it. It was the grief of a baffled man, raging against his lot. He needed vent for his anger,—he needed to dispel remorse, to distract reflection, to avert madness.

He resumed his pen. He found a subject for his fury in the wrongs of Ireland—an inexhaustible theme, then,—and although he had always detested the country of his birth, and of his present exile, and detested it still, he saw that he could discharge himself of much of his wrath about it. And he did. Such wit, such fierce invective, such withering sarcasm, as he now gave to the world in the “*Drapier Letters*,” in tracts, in sermons even, astonished every one. He became a terror to the English government, who would not advance him, and an idol in Ireland, where the warm-hearted people thought he really loved their cause, and believed his scorn and malice to be virtue. The polished periods and careful abuse of Junius will not bear comparison with the homely style and trenchant, merciless blows of Dean Drapier. Gulliver was the climax of all. In that wonderful but most appalling book all the powers of his pen seem concentrated. No one escaped. The man was full of venom, and threw it everywhere.

At last, on the 28th of January, 1727, the poor heart-weary Stella died. On her death-bed she sent for a lawyer, and willed all her property away from the cruel and wicked man—her husband. His temper, always violent, soon became ungovernable. From 1736 his chronic giddiness and deafness continually troubled him, and in 1740 his reason gave way. He lingered in life, “a solitary idiot,” as Byron says of him, till 1745, knowing no one, and only speaking once or twice during the whole of the last three years. He died on the 19th of October, and was buried in St. Patrick’s Cathedral.

Such was the “great” Dean Swift’s wretched career.

Some of his biographers say that he was a pious and reverent man. Neither his writings nor his actions, his life, nor the inscription which he left for his tombstone, support the opinion. He was gloomy, selfish, angry, and cruel, and ought never to have been a clergyman. His charity has been spoken of, and doubtless he gave money to destitution ; but he was not benevolent in the true sense of the word, nor genial, nor loving. He was never known to laugh, and he detested children.

He has been called the Founder of Irony in modern literature. This is not true. Defoe's "Shortest Way with the Dissenters" (than which Swift never wrote a more telling pamphlet) was published in 1702, and its brave author had stood in the pillory for it, and turned his enemies into ridicule, before the "Tale of a Tub" appeared. But that the Dean wielded that terrible weapon with marvellous skill and effect no one will deny. Like Defoe, he had little imagination and scarcely any fancy ; but the great Nonconformist and Novelist had none of his gall and venom.

We speak of him, however, as a man rather than an author. Mr. Thackeray says, that to have got so much love from the unhappy women who died because of him, he must have given some. This is to say, with Bacon, that all love must be reciprocal. We think that experience will bring many instances to the contrary. Woman's affection is often so wonderfully compounded of admiration and pity, and *desire to love*, that reciprocity is not always essential for *her*. That love, which "hopeth all things," encircles the head of dulness, selfishness, moroseness, and even vice, with a halo of purity all its own. Woe to the man who deceives such as love thus ! Swift did ; and he lived miserable, and died mad.

C. M. C.

OURSELVES.

THE SENSE OF HEARING.

THE Ear consists of three distinct portions, or sets of organs, whose functions all conduce to one common purpose. The *outer* ear collects and concentrates the impulses of sound; the *middle* portion receives and transmits them to the deep or *inner* ear, where they impress the nerves of hearing.

The *External Ear*, or *Concha*, so termed from its shell-like shape, is composed almost entirely of cartilage, covered with a delicate layer of the common integument. Its elevations and depressions form a series of curves, which appear to be arranged for the reception of the waves of sound, and for directing them towards the funnel-shaped canal which leads to the interior. The depending lobe is quite peculiar to the human species. An apparatus of muscles, sufficiently developed to bear distinct names, is, in most cases, rudimentary in man; if they do act, it is probable that they induce some very minute changes in the form of the cartilaginous concha. Every now and then, however, an instance occurs, in which considerable power is possessed by one or more of them: a friend of the writer of this paper, can raise his ears quite three-quarters of an inch from their ordinary position; but they sink by the elasticity of the common integument. A tribe of Indians, it is said, can project their ears very considerably forwards, when listening attentively; to many animals, the hare for instance, they are, for that purpose, of essential importance.

The canal which leads inwards, called technically the *Meatus Auditorius*, is made up partly of bone and partly of cartilage. It is about an inch in length; and is lined throughout by the cuticle, which extends as far as the *Tympanum* or *Drum*, of which it forms the outer surface.

By continued maceration in water, this reflexion of the common integument becomes loosened, and can be pulled out like the finger of a glove. Numerous small glands lying immediately under the surface, pour out a supply of thick oily fluid, of an acrid quality, which prohibits the intrusion of insects : some small hairs, scattered about the entrance of the canal, seem to be intended for the same purpose.

Access to the interior, however, is prevented by a membrane, called the *membrane of the Tympanum* ; which stretched across the passage, like the pelt or parchment on a drum-head, completely closes it. This is composed of three layers ; the outer one already noticed, is formed by the cuticle ; the middle layer consists almost entirely of muscular fibres, radiating from a common centre ; the inner one is a continuation of the membrane which lines the cavity, called the *Tympanum* or *Drum*.

This cavity, the *Middle Ear*, is not quite half an inch in width : it and the inner ear are scooped out of the hardest part, or Petrous portion, as anatomists term it, of the temporal bone. The great density of this portion of that bone, and which has given to it its specific name, renders it much more vibratory than any other bone, or portion of bone, in the whole human fabric, and bears evident relation to the function of the included organ. Into the tympanum, which is of an irregular shape, and is always filled with air, open, 1st, The *Eustachian tube* ; a trumpet-shaped canal, which, beginning with a small aperture, gradually increases in size as it extends downwards, until it reaches the back part of the nostrils and fauces, where it ends by a wide opening. 2nd, a passage to a series of air-cells, contained in a mammary-shaped process of bone, called *mastoid*, behind the lobe of the ear, which can be readily felt by the finger. 3rd, on the side of the tympanum opposite to the membrane, just above a bony

ridge or promontory, is a small aperture, called the *Fenestra ovalis*, or *oval window*, which is accurately closed by a delicate curtain. 4th, below the promontory, is another small opening termed the *Fenestra rotunda*, *round window*, over which is extended a fold of membrane, by which it, too, is shut up.

Extending across the cavity of the tympanum, and reaching from the membrane of the drum to the *Fenestra ovalis*, are four little bones or ossicles. They are represented in the sketch Fig. 1, magnified to about four times their natural size; and are named respectively from their shape,—

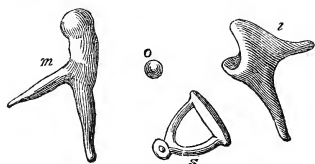


Fig. 1.

The *Malleus* or hammer, *m*; the *Incus* or anvil, *i*; the *Orbicular* or *Lenticular* bone, *o*; the *Stapes* or *stirrup*, *s*. Though so small, they are articulated with all the apparatus of moveable joints, and

are acted upon by appropriate muscles. The long handle of the *Hammer* is tied by ligament to the middle of the membrane of the Tympanum; its head rests on the top of the *Anvil*; to the long foot of which is attached the *Orbicular* bone; which is articulated with the head of the *Stirrup*; whose base protrudes into the oval window of the labyrinth, against which it constantly presses. A solid,* bony, moveable communication is thus established, from the outer, across the middle, into the inner ear.

The *Inner Ear*, or *Labyrinth*, as it is termed by anatomists, on account of the intricacy of its winding passages, is usually divided, for description's sake, into the Vestibule, *v*, in Fig. 2; the Cochlea, *c*; the Semicircular Canals, *s c*.

These are all hollow; are lined, with the exception of the Cochlea, by a delicate film of Periosteum, called the *Mem-*

* Solid bodies convey sound better than the air does.

branous Labyrinth; and are filled with a thin transparent, gelatinous fluid, called the *Perilymph*. On the membranous labyrinth are distributed the Ultimate fibres of the nerves of hearing. Upon the surface of the Vestibule, *v*, will be seen the openings *FO*, the Fenestra ovalis; and *FR*, the Fenestra rotunda. A portion of the bony surface of the cochlea has been removed to show its interior structure. There are other anatomical niceties,* with which it seems hardly worth while to trouble the reader, as they do not serve to explain the general process of the function of hearing.

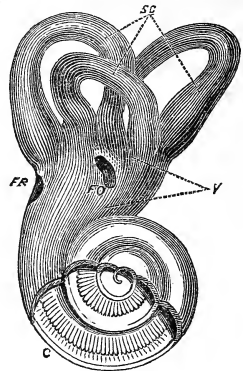


Fig. 2.

In the sketch Fig. 3, the principal parts are shown in

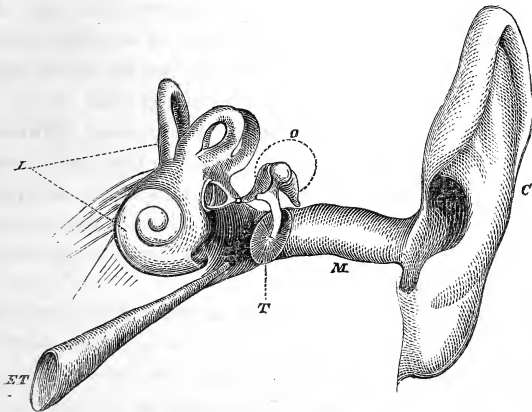


Fig. 3.

* Such as the distinction of the fluids into Perilymph and Endolymph, the Ampullæ, the Utricule, &c.

their relative positions, though not quite of their natural size; for the ossicles are represented twice as large as they really are, and the labyrinth nearly as much so.

c is the External Ear or Concha, with its depending lobe; m, the Meatus Auditorius, closed by t, the membrane of the Tympanum, to which is affixed the handle of the hammer; o, the Ossicles. The base of the stapes is resting against the oval window of the Labyrinth l. e t, the Eustachian Tube. The Cavity or Tympanum is indicated by the darkened portion, between the membrane and the labyrinth.

Although the structure of the different portions of the organ has been clearly made out, and their relative positions accurately defined, it is, confessedly, exceedingly difficult to particularise, with anything like exactness, the part which each takes in the discharge of their common function, and how it is fulfilled. Guided by a knowledge of their anatomical construction, and by the arrangement of the several parts, by the analogies which comparative anatomy affords, by the known laws of sound and vibrating substances, and by the effects of disease on different portions of the organ; it is assumed, that the sonorous vibrations or pulses of sound which reach the external ear, are directed by it along the auditory canal; striking against the membrane which closes the passage, they produce in it vibrations of corresponding frequency: the air* contained in the tympanum communicates these vibrations to the membrane covering the Fenestra rotunda; while the Fenestra ovalis is similarly impressed by the base of the stapes, one of the links in the chain of ossicles, which juts into it. The perilymph, or fluid contained in the labyrinth, is thus undulated by every external sound, both through the medium of the air and by the solid chain of bones. The undulations so produced impress the

* The tension and relaxation of the membrane are allowed, by the escape and return of the air into the cavity, through the Eustachian tube, which acts like the vent-hole in a drum's side.

extremities of the nervous filaments spread over the membranous labyrinth, and these impressions are followed by the *sensation of sound*.

By this sense the circle of our acquaintance with external objects is very much enlarged. The diameter of its extreme limits is hardly less than 400 miles. The sounds of a cannonading between the English and Dutch, in 1672, were heard at Shrewsbury, and in Wales also, at least 200 miles distant. Guns fired at Carlsroon were heard across the southern extremity of Sweden, as far as Denmark, 120 miles off. Dr. Young relates, on the authority of Derham, that at Gibraltar the voice has been heard quite ten miles from the speaker. Lieut. Foster, who was with Captain Parry in the third Polar expedition, held a conversation with a man across the harbour of Port Bowen, a mile and a quarter away from where he stood. Dr. Hutton relates that he heard a person distinctly reading over water at 140 feet from him, but on land only 76 distant from him.

These facts, though they refer more immediately to the phenomena of sound, serve to show how largely the circumference of our knowledge is extended by this particular sense ; for the impressions made upon the organs of touch, taste, and smell, are induced chiefly by bodies immediately in contact with them.

The ear readily distinguishes such special sounds as are produced by special acts, and by different vibrating substances: the crack of a whip, the report of a pistol, the blow of a hammer or mallet on wood, stone, or iron, are easily discriminated ; as are the modulations of the human voice, in the enunciation of 400 languages ; and the force and quality of every tone.

A musical note or tone is produced, if the pulsations of sound, evolved by a wind or stringed instrument, succeed each other so rapidly, that sixteen of them fall on the ear

within a second of time: for then, the impression made by the previous vibration remains until it is repeated. When the interval between the vibrations is long, the note is grave or low; if the interval is short, that is, if the vibrations follow one another in quick succession, the sound produced is acute, and the note is termed high. It has been computed that the highest note consists of 64,000 vibrations; the lowest, as we have already mentioned, of 16 in a second. These limits have been placed, by another authority, at 32 and 73,000 respectively. The musical scale or gamut probably indicates multiples, or rather divisional and fractional parts, of the true numbers.

A curious feature of this sense, and unique in the natural history of sensation, is, that although we have two ears, we only hear one sound. Anatomists show that there is no communication between the two organs, but they are so nicely tuned, so exactly poised, and their unison is so perfect, that they yield only one expression.

This sense adds greatly to our happiness. As a counterpart of the faculty of speech, distinct from its usefulness, what incalculable amount of enjoyment it derives to us! And, though some persons "*do not care much about music*;" yet, in some form or other, we all like the "*harmony of sweet sounds*." For, if the bagpipe and the fiddle are as garlic to some tastes, yet they are honey to others; and the skylark's song, and the nightingale's, and the notes of the blackbird and the throstle, and of God's other choristers, and expressions of tenderness and tones of endearment, fall gratefully on every ear!

It may, perhaps, interest the reader to know, that if the external ear, and the membranous linings of the larger passages were left out, the whole of the machinery by which the functions of this sense are fulfilled, would, if it were taken to pieces and carefully packed, about fill the shell of a good-sized hazel nut.

P. S.

THE JACKAL (FOX OF SCRIPTURE).

Canis aureus.

UNDER the general name of Jackals are included several species of the family of dogs, found in the warmer parts of Asia, and widely distributed over the continent of Africa. They are all gregarious in their habits, keeping together and hunting in packs. Belonging to a family whose type is proverbial for sagacity and reason, the jackals seem well aware that there is strength in unity, and they, together, effect what individually their small size would prevent them from accomplishing. It is only occasionally that the more powerful and savage wolf, belonging to the same family, hunts in packs; the jackals seem constantly to do so. They are all of them of a more or less tawny colour; and though the epithet "golden" can scarcely be, with strict propriety, applied to the hue of the species so abundantly scattered over Northern Africa and Eastern Asia, it is yet known to naturalists by the name of "*Canis aureus*." There seems to be no manner of doubt that it is chiefly, if not almost wholly, to this animal that the Scriptures refer in the passages rendered "fox" and "foxes" by our venerable translators. For, although both the Common Fox, and that species described by Dr. Gray as the *Vulpes flavescens*, are found in Syria or its vicinity, and the *Vulpes Niloticus*, or Egyptian Fox, abounds in Egypt, from the accounts of travellers in the Holy Land, the jackal seems to be the animal chiefly found there at the present time. Indeed the Hebrew word *shaal*, often translated fox, differs but little in sound from *chacal* or *chical*, as the Arabs and Turks call the somewhat fox-like animal

which, in imitation of their name for it, we know as the jackal.

There seems to be every reason for believing that it is the jackal that is mentioned in Judges, xv. 4, where we are told, that Samson went and caught "three hundred foxes and took firebrands, and turned tail to tail, and put a firebrand in the midst between two tails. And when he had set the brands on fire, he let them go into the standing corn of the Philistines, and burnt both the shocks, and also the standing corn, with the vineyards and olives." Much has been written on this passage, some commentators, such as Dr. Kennicott,* rendering the word "foxes" "sheaves of corn." With Dr. Shaw, however, and most travellers, we contend for the rendering in our translation. He remarks, "As the jackals are creatures by far the most common and familiar, as well as the most numerous, of those countries, several of them feeding often together, so we may well perceive the great possibility there was for Samson to take, or cause to be taken, three hundred of them."† It is curious, also, to know that at the *Vulpinaria*, or Feast of the Foxes, one of the ancient Roman festivals, by some supposed to have been borrowed from this event, it was the practice to couple foxes in this way, with a brand or lighted torch between them.

The jackal is a common animal in Syria at the present day. Count Forbin, when visiting Ascalon, was struck with its desolation, which he thus describes: "It is without an inhabitant, . . . in the vast churches not any echo is to be heard, save that of the cry of the jackal; large flocks of these animals are assembled in the great square, and they are at present the only rulers of Ascalon." It is evidently to this animal that Messrs. Bonar and M'Cheyne refer in

* See note to Bagster's "Comprehensive Bible," p. 295.

† "Travels in Part of Barbary and the Levant," p. 175.

their Narrative,* “ We did not enter Gibeon, because the sun was setting. As we crossed through the rich vineyards which skirt the hill upon which Geeb stands, two foxes sprang out, and, crossing our path, ran into the corn-fields. The thick leafy shade of the vine conceals them from view, while the fruit allures them ; like the secret destroyers mentioned in the Song (ii. 15), ‘ Take us the foxes, the little foxes that spoil the vines ; for our vines have tender grapes.’ We saw before us, also, the mixture of standing corn and vineyards, from one to the other of which the foxes ran when Samson set them loose. (Judges, xv. 5.)” The jackals of the Dukhun, which appear to be identical in species with those of the Levant and Persia, are terrible depredators in the vineyards of that part of India.†

When Nehemiah was rebuilding the wall of Jerusalem, Tobiah the Ammonite, in derision, said that, “ if a fox go up, he shall even break down their stone wall” (Neh. iv. 3) ; while Jeremiah, in his Lamentations, giving a proof of the desolation which had come over the mountain of Zion, says, “ The foxes walk upon it” (v. 18). No one can read the narratives of Eastern travellers, from the time of old Maundrell to Dr. Robinson or Lieut. Van de Velde, without seeing, on almost every page, the appositeness of these allusions. Our Saviour, when addressing the Scribe who came to Him, as the most striking example and instance of His want of earthly comforts exclaimed, “ *The foxes have holes, and the birds of the air have nests ; but the Son of Man hath not where to lay his head*” (Matt. viii. 20).

He “ who spake as never man spake” applied the striking name to the crafty and wicked Herod, “ Go ye and tell that fox” (Luke, xiii. 32) ; while Ezekiel, denouncing woe on “ the foolish prophets, that follow their own spirit and have

* “ Narrative of a Mission of Inquiry to the Jews,” p. 203.

† Dr. Horsfield. “ Catalogue of Mammalia in East India House,” p. 81.

seen nothing," exclaims, "O Israel, thy prophets are like the foxes in the deserts." (Ezek. xiii. 4.)

It is during the night that the jackal is particularly active, and at such times it prowls about in packs of from forty to one hundred individuals or more. Kotzebue remarks, that it is then much bolder than during the day, and carries off boots, shoes, harness, and any article made of leather, toughness being no impediment or great resistance to its well-filled jaws. When hungry it enters churchyards, like the hyæna, and digs up recently buried bodies. That traveller says, that "its howl shakes the very soul;" while Admiral Beechey, in his "Travels on the Northern Coast of Africa," compares its crying to a gigantic musical concert. He says, "It must be confessed that it has something in it rather appalling when heard for the first time at night; and as they usually come in packs, the first shriek which is uttered is always the signal for a general chorus. We hardly know a sound which partakes less of harmony than that which is at present in question; and, indeed, the sudden burst of the answering long-protracted scream, succeeding immediately the opening note, is scarcely less impressive than the roll of a thunder-clap immediately after a flash of lightning. The effect of this music is very much increased when the first note is heard in the distance, a circumstance which often occurs, and the answering yell bursts out from several points at once, within a few yards or feet of the place where the auditors are sleeping."

The prophet Jeremiah, in the judgment pronounced upon Babylon, alludes to the "wild beasts of the desert" dwelling there (Jer. l. 39) along with the "wild beasts of the islands," the former word being *tziim* or *ziim*, and the latter *ijim* or *uim*, in the original, both of this and other passages so rendered by our translators. Dr. Shaw, who was so familiar with the habits of the different animals of the East, concludes that the latter

were *jackals*, while the other creature was the *Siyah-gush*, a small lynx-like cat with black ears. That traveller has observed jackals and these animals associated together, while gnawing at carcasses which the lion is supposed to have fed upon the night before. In the East both these animals, from being generally regarded as finders out of prey for "the king of the beasts," are often called the "lion's providers,"* and by this name the jackal is often exhibited in travelling menageries. It is very unlikely, however, that there is any other foundation for such an intercourse between these two beasts than common report, any more than there is ground for believing that the vultures, associated with them sometimes on the same carcass, are also purveyors of provision for the lion. "Where the carcass is, thither are the eagles gathered together." When David was in the wilderness of Judah, hiding from his persecutors, he prophesied that his enemies would "fall by the sword," and that their bodies "would be a portion for foxes" (Psalm lxiii. 10);†

* In India, too, the native sportsmen, according to Mr. Elliot of Wolfelee, universally believe that an old jackal is in constant attendance on the tiger, and when they hear its cry, the vicinity of the tiger is confidently pronounced.—"Horsfield's Catalogue," p. 81.

† A passage well illustrated by the terrible description in Byron's "Siege of Corinth :"—

"He saw the lean dogs beneath the wall
 Hold o'er the dead their carnival,
 Gorging and growling o'er carcass and limb ;
 They were too busy to bark at him !
 From a Tartar's skull they had stripp'd the flesh,
 As ye peel the fig when its fruit is fresh ;
 And their white tusks crunch'd o'er the whiter skull,
 As it slipp'd through their jaws, when their edge grew dull ;
 As they lazily mumbled the bones of the dead,
 When they scarce could rise from the spot where they fed ;
 So well had they broken a lingering fast
 With those who had fallen for that night's repast."

the word here translated foxes is *shaalim*. The jackal still frequents the very mountain-ranges where the persecuted king wandered so long, and so frequently observed the animals and scenery which surrounded him.

Messrs. Hemprich and Ehrenberg* killed a dog in Syria which seems only a variety of the jackal. This was named *Vauie* by the natives of Lebanon,—a name derived from its howling noise, and an imitation of part of which these travellers give in a foot-note, *Vau-ii-ii vau-ii*, &c. &c. The Hebrew word, already alluded to, is included in this, and they are both evidently applied to the jackal from the dismal notes which it utters, not always as an indication of hunger or ferocity; for, horrid and stunning as the chorus seems to the ear of man, the sounds would often appear to indicate that these social animals are pleased.

The Hindus of the lowest caste believe themselves to be of the same species with this animal. They are taught that through eternal transmigrations they shall never rise higher than jackals. Lord Glenelg, in his Cambridge prize poem, "On the Restoration of Learning in the East," thus alludes to this miserable belief:—

" At Brahma's stern decree, as ages roll,
New shapes of clay await the immortal soul,
Darkling condemn'd in forms obscene to prowl,
And swell the midnight melancholy howl!"

A. W.

* "Symbolæ Physicæ. Mammalia."

NOTES ON NORWAY.

No. III.

A VILLAGE ON STILTS. SALMON-FISHING. ST. ANN'S FAIR.
THE SVER-FJORD GLACIER. THE CAPTAIN ASHORE. A
MOUNTAIN ASCENDED. ULLE'S DEPARTURE.

TOWARDS the upper extremity the Sogne Fjord narrows rapidly, terminating between bare and treeless rocks, which shoot high into the air their polished and nearly perpendicular sides, as if to cover with a helmet of iron the head of the ravine. And here a copious river empties its waters into the fjord, upon which is situate the straggling village of Leirdalsören.

Casting anchor, we immediately landed upon a rude jetty, and walked upwards to the village, of course built of wood, the houses being for the most part elevated upon wooden stakes, as is common throughout the rural parts of Norway, to preserve them from the incursion of rats. Reaching the river our lines were soon launched on the current, in the hope of securing some of those salmon of which we had heard so much; without the least success, however. But, in the hope that farther up we might fall in with better sport, we fished up the river, sending back to Leirdalsören for a conveyance. It was not long of overtaking us, and proved to be a country cart, in which we got our first experience of Norsk charioteering. The road was hilly, but the brisk little pony no sooner saw a descent before him, than he set off at full speed, leaving us no alternative but to hold hard by the sides of the springless vehicle, which went bouncing and careering down the steep hills in a way that threatened the dislocation of all the unhappy human bones

within it. The evening had grown sombre, which the better suited the character of the scenery. The gorge through which the river flows is narrow, shut in by frowning mountains of great height, with foaming torrents leaping down their dark sides. Birch is almost the only tree that seems to flourish here; but there is a stripe of rich cultivation along the banks of the Elv. Splendid crops of barley, rye, and potatoes, wound along the belt of level land which, at least in the lower valley, lay between the river and the mountains. A terrible solitude seems to preside over the valley, and, in gazing into the far recesses of the dark mountains, the mind is irresistibly disposed to melancholy. Perhaps no scene in Norway, not even the craggy desolations of the outer islands, impressed us so forcibly with this sense of gloom.

When we had proceeded about ten miles up the valley, we halted at what appeared a favourable spot for fishing, and separating to considerable distances, agreed to rendezvous at a certain spot on the river's bank. When we reached the trysting-place, it turned out that in so far as the much-coveted "*lax*" were concerned, the success was no better than formerly. The truth is, that in this river, and others similarly situated at the base of lofty mountains whose extensive table-lands of snow send down large quantities of ice-cold water at this period, there is no salmon-fishing to be got till much later in the season. Some of the more northern rivers, where the mountains are of greatly less elevation, offer good sport to the salmon-fisher much earlier than the rivers of the south. We were more than amply repaid, however, by the gloomy grandeur of the scenery. Our little pony, refreshed by the delay, soon measured the homeward road. We found Leirdalsören in a state of festive excitement as we passed through it, and reached our yacht about nine o'clock at night.

Having taken some refreshment, of which we all stood in considerable need, we came on deck again. The scene that presented itself on the common before the village was an animated one: a huge bonfire, and large groups of people, being all that we could distinguish from the yacht. Two of us resolved to go and witness for ourselves the festivities in honour of St. Ann's Day. Accordingly, taking Ulle with us, we landed about midnight. On our way to the village, we had to force a passage through herds of ponies and cattle which bivouacked on the road: they had been brought for sale to the great fair of St. Ann's Day to this village, which, though very small in itself, acquires importance from being the largest to be found in a very wide extent of country. It seems, too, to be a military station. Considerable numbers of soldiers were mixed up with the country people. We extract a few notes of this midnight excursion, taken at the time:—

“In a saunter through the village we found its streets very quiet, though the ale-shops were full. The temptation these offered proved too much for Ulle, who deserted us here, and did not return till six next morning. We soon reached the open space which seemed to be the village common. A huge bonfire burned in the centre, with a large assemblage of rejoicing boys around it. Two old boats, with their fizzing resin and tar, formed the chief aliment of the fire, whose heat was not ungrateful, as it was now past one A.M. At considerable distances from the fire, and from one another, were three groups of happy, but quiet and respectable people, gazing at the dancers who figured in the enclosed spaces to the sound of a violin. In passing from group to group we met with the greatest respect and attention. They were everywhere eager to make room for us, and to let us witness their characteristic dances. The most peculiar of them was a dance called ‘Houlikin,’ by a single

man, in which, first swinging himself to one side in way of preparation, he then whirls himself rapidly round to the other, swinging his feet high into the air: had it been in a house, he would have kicked the roof. The exertion was evidently great, as the performer, after four or five such grotesque somersets, with brief interludes of rude dancing, seemed quite exhausted. They showed no small alacrity in this performance, but only one or two in each group seemed adepts in it, as the services of the same individuals were repeatedly demanded for behoof of the foreigners present. There was a good deal of waltzing and 'houlikin,' which they did gracefully, though with a sombreness, and even solemnity in the mien of the dancers, that would have done honour to a Dutch burgomaster and his wife. There was the utmost propriety and modesty in the conduct of all we saw: the mirth was of a quiet and peaceful kind, there was no boisterous laughter, but, instead, a general air of peaceful contentment. There was not a drop of liquor circulating among them, and all were perfectly sober.

"It may be as well here to mention, that we have heard from several quarters that the general love of 'brandtwein' is on the decline, so that old Caledonia had better take care lest she outstrip in drunkenness the one country of the world which has hitherto outrun her in this vice.

"Little Leirdalsören was evidently unable to supply beds to all the strangers who had poured into it on St. Ann's Day, and the peasants from afar seemed to fancy dancing the best mode of keeping themselves warm. We observed that the belles of the evening made a vigorous resistance to the demand of their partners the prelude to every dance, and generally yielded only when fairly dragged into the centre of the ring. We saw, of course, considerable variety of costume, the scarlet head-dress forming the most conspicuous feature. The splendid light of the North was

all the while gleaming over the hills, and the scene was one of no common beauty, as, after threading our way through the irregular streets of Leirdalsören, we were, a little after two, pulling briskly towards our yacht."

In descending the fjord a day or two after this, we were so much fascinated with the beauty of a glacier in the Sver Fjord, and the grandeur of the mountains from which it descended, that we resolved on an exploring expedition.

Soon after midnight we were roused, and, with the desperate struggle which is necessary to throw off the delicious beginnings of slumber—for we had only been an hour in bed—we sprang from our berths. Then ensued the bustle of preparation, the selection of garments suited for the expedition, the stuffing of biscuits and cheese and cold roast fowl into the ever-ready fishing-basket. One of our party was unable to accompany us in this expedition; our captain took his place. On reaching the head of the Fjord, a guide was our first requirement, so, climbing a steep brow, we reached a cottage. No bolts or bars are needed to secure the tranquillity of the Norsk peasant, so, opening the door, I entered along with Ulle. The room in which we found ourselves was a spacious one, fragrant as usual with juniper, but tenanted, as we soon found to our cost, in virtue of a kind of communism which seems to prevail in all latitudes of continental Europe, by more than human occupants. The *pater-familias* and his spouse were snoring lustily, unconscious of intruders. "*Gute morgen*," I said, in a loud voice, coming up to the bedside, but a profounder snore was the only response. "*Gute morgen*." Half in his sleep, he uttered the word "*nat*," which seemed to him more appropriate than "*morgen*." Ulle, however, not troubled with over-scrupulousness, cut the matter short by seizing the slumbering husband by the shoulders, and, after giving him a hearty shake, telling him that he mus

guide us to the glacier. His eyes slowly opened as he uttered the monosyllable "*nei*" (no) with prolonged emphasis. His wife, too, began to echo his *neis*. But on clinking a few *orts* together, and giving a hint that we wished besides to purchase one of their sheep, their views of the matter began to change; and soon the husband was dressing, and the wife taking me to the sheep-pen, we fixed upon the fattest of the lot, for which we agreed to pay seven *orts*, or about six shillings. We had a long walk of six or seven miles up the bottom of the valley before the ascent commenced. The apparent distance in this case, as in so many others, was very much less than the real distance. The glacier we wished to explore looked as if it came down nearly to the sea when viewed from a position a few miles down the fjord. The truth is, measurement of distances in scenery of this character is a matter of great difficulty.

The early morning was glorious, and its pure, fresh, elastic air most exhilarating. Our path following the windings of the valley conducted us among rich patches of meadow, potatoes, oats, rye, and barley, interspersed prettily among the pine and birch which abound in the valley, with here and there even a few small elms. Craggy precipices frowned around us, while, as usual, boiling cataracts plunged and dashed down the steep. On the northern slopes patches of snow came down to the very border of the bottom of the valley.

Remote as was the region, wooden huts and hamlets were not wanting. The numbers of wooden erections assembled in little villages, throughout Norway generally, are apt to convey an erroneous impression to the eye of the stranger. So many as four or five of these timber tenements often represent only a single family. The reason of this is, that the excessive abundance of pine tempts them to build separate

storehouses for the various kinds of farm produce, winter supplies, and such other commodities as they possess. In this way one frequently comes to a village of imposing aspect, consisting of forty or fifty houses, of which the whole population will turn out not to exceed perhaps ten families. The same cause makes the Norwegian peasant master of roomy and airy apartments for himself and his family, no parallel to which can be found even among our best-conditioned peasantry. A circumstance this very favourable to Norwegian morality, and an important element towards health and comfort. The room in which we found our guide sleeping was probably not less than twenty feet square.

At last the ascent began through pine-forest, of gradually diminishing stature. This at length yielded to birch, and the birch by degrees gave place to heather and moss. When we had ascended about 2000 feet we reached a *saeter*, or mountain chalet, inhabited only while the cattle are driven up to their summer pasturage in the mountains. This is done to a vast extent over the whole of Norway, in order to save the hay and other products of the valleys for winter use. In this valley, and in others farther north, we observed numerous rude screens or palings made of birch for the purpose of drying the hay, which is wattled among the branches of it. This expedient is rendered necessary by the shortness of their summer, and in capricious seasons is sometimes the means of saving the crops. We observed this practice to be still more general in the neighbourhood of Trondhjem, where there is increased necessity for it.

After scaling a final height, we found ourselves standing above the glacier, in a position that commanded a noble view of it. It takes its origin from extensive snow-fields or *snae-brae*, which slope downwards from the mountain-tops,

several gorges converging at this point and yielding their icy supply to the glacier, which makes a rapid descent, shut in on either side by nearly precipitous rocks. The surface of the glacier is very rugged, being traversed by deep and irregular crevasses; its lower part, however, consists of comparatively smooth blue ice. It appears to be of very difficult access, and it lay too far below us to admit of our trying to reach its surface. We accordingly lay down to enjoy the beauty of the magnificent scene, and to discuss the contents of our basket,—an occupation for which we were well prepared, as it was now half-past seven o'clock. The height we had reached, as indicated by the aneroid barometer, was 3200 feet. One reason why we started so soon after midnight was to avoid the heat of the sun. But already we found his direct rays so overpowering, that four of us, as soon as we had finished breakfast, fell fast asleep on the bare rocks.

We were soon however aroused, as we had determined to attempt the ascent of the loftiest summit on the side of the valley on which we then were. This mountain is known among the peasants by the name of *Gaat-op-hesten*, or “Up goes the horse,” in allusion to the story of a horse which once strayed to this dreary elevation. It was, of course, deeply covered with snow, and our guide did not profess much knowledge of it; nor, in all probability, had the foot of southern ever before scaled these snowy heights. This last consideration did not diminish our desire to accomplish the ascent. Our trusty captain, however, who for the last hour or two had followed us not without sundry grumblings, here fairly gave in. Leaving us, he began to descend, declaring that he would rather buffet against the stiffest north-wester than encounter the sun and the snows of these outlandish mountains. He complained for two or three weeks

after of pains in all his bones, and could never again be prevailed upon to encounter with us the fatigues and perils of the land.

The ascent was up steep slopes of snow; in one place conducting us along a narrow ridge crowned by a snow-drift, which terminated in a precipitous edge forming a lofty snow-cliff. Nearer the summit we had to take a somewhat perilous passage. To the left rose a black precipice, along whose foot we must pass. The valley below this was literally filled up with snow. But the snow which filled it was unfortunately traversed by a tremendous chasm of great depth and of considerable length, which ran parallel to the precipice, and within a few feet of it. The pathway of snow between the precipice and the crevasse must be passed, for there appeared to be no other access to the summit. The snow had been considerably softened by the sun's influence, and we were not without anxiety lest the wall of snow might yield beneath our weight, and precipitate us into the yawning chasm, from which there would have been no possibility of rescue. We therefore set cautiously about our task, determined, if we saw any symptoms of yielding, to retreat rather than run any needless risk. Our manly guide went first, planting his footsteps with the utmost circumspection in the yielding snow. One by one we followed cautiously and silently, taking step for step in his deep footprints, and it was with no small satisfaction that we saw the last of the party pass the further extremity of the chasm. We thus flanked the precipice, and a rapid pull up the final snowy slope, which was of extreme steepness, brought us suddenly to the summit of Gaat-op-hesten, a height of 4800 feet, as indicated by the aneroid. The view that burst upon us here was one of the grandest it is possible to imagine. The atmosphere was intensely clear, revealing to us a very wide extent of view. For sixty miles

or more on every side the eye ranged over a perfect sea of billowy mountains, composed of bare gneiss, and granite, and snow. The uniformity of outline that is characteristic of a large proportion of the mountain-heights of Norway was observable here, but finely varied by the wild pinnacles of the *Hurungerne* range, with the needlelike summit of *Skagstols-tind* (*tind* corresponds to the French *aiguille*) towering above the rest to a height of 7877 feet ; while against the opposite horizon rose the strange and unmistakable form of a solitary island mountain we had observed at the mouth of the Sogne Fjord. Then running seaward were easily traceable the summits of the two parallel ranges which shut in the Sogne Fjord, while at only one or two points could a glimpse of the Fjord itself be obtained. Immediately below us, on the opposite side of Gaat-op-hesten, stretched a vast plain of spotless snow, and beyond this again a frozen lake. The *impression* conveyed by this scene it is not possible to convey by description. We wish we could have had with us one of the class of travellers who decry mountain-climbing as though it never repaid the trouble ; we wish that his eye could have ranged over this almost unlimited circle of snow, and ice, and granite, and Arctic desolation, while the unclouded heaven, like a vast concave mirror, seemed to sparkle with the reflected splendours of the snow : if he had a soul at all, it must have been kindled by such a scene.

Descending by the opposite side, we regained our yacht about five in the afternoon ; and scarcely had we got on board when heavy clouds began rapidly to cover the mountains we had just descended, and a peal of thunder—a thing of comparatively rare occurrence in these latitudes—burst right overhead. We congratulated ourselves that we had reached shelter in time. Though the wind was ahead and the tackings very frequent through the night, there were

some of us who, turning in at eight o'clock, enjoyed twelve hours of such slumber as is the reward only of toil. The next morning found us all refreshed and vigorous ; the poor captain alone crept about with uneasiness, and carried with him sullen remembrances of the dangers and sorrows of the shore.

We continued to tack down the Sogne Fjord against a head-wind and under a cloudy sky. The aspect of the scenery was greatly altered since the time when we sailed upwards under a cloudless heaven. Now the mountains were shrouded in mist and rain, and from beneath the white rolling clouds sprung the furious cascades swollen by the stormy showers. The mountains, more than half-veiled, seemed to gain in height. The sombreness of the weather harmonised with the solemn grandeur of the scenery, and the effect produced upon the mind was an overpowering sense of vastness, solitude, and melancholy.

About four o'clock on the morning of the 29th Ulle left us. We landed him on a promontory at a considerable distance from the point where we had taken him up, giving him a few marks extra in consideration of this inconvenience to him. He would have a journey over bare rocks, and be dependent on the assistance of casual boats to take him from island to island, ere he could reach his destination. I went ashore with him, under drenching rain, to see the last of him ; and I confess that it was not without very lively feelings of regret that I felt the warm pressure of the wild but honest fellow's hand, as he gave me a fisherman's parting blessing.

R. H. L.

TIMES OF REFRESHING.

CHAP. V.

THE sixteenth century was a time of marvellous refreshing to all the nations of Europe. Hardly one was left unvisited. Over some the shower threw itself more largely, on others more scantily; but the drops from the skirts of that vast cloud, now hovering over Europe, were falling everywhere. In some places man's enmity to Christ and His Gospel prevailed. The rain evaporated as it descended, and its fruits speedily disappeared. Persecution sterilized the ground and withered up each leaf and blossom as they put themselves forth. How madly man fought against God! How terrible the victory he won!

Tens of thousands would not be the sum of the numbers which Europe then gave to Christ. That era forms one of history's brightest and most glorious pages.

Yet it is not of numbers merely that we can write, though so many thousands were then added to the Church. It is the intense vitality of the Christianity of that time that we delight to dwell upon. In freshness, fervour, power, life, and consistent symmetry of profession, little since the days of the Apostles, has been witnessed like it. So mightily grew the Word of God and prevailed.

Let us take our stand beside some of those witnesses for Christ, of whose story history has left us some rare fragments. Let us look at them in their doings, and sayings, and sufferings. Let us accompany them to the firesides, or the highway, or the pulpit, or the stake. Thus we shall learn much concerning their times. They themselves will teach us what great things God did for them and for their age.

In the year 1523, we find two Augustine friars, by name Henry Voes and John Esch, suffering martyrdom for Christ.

They have learned the way of life through the death of the Great Substitute; and they not only rejoice in it themselves, but tell it abroad in their monastery, in which the truth so spread, that at their death the *heretical* community has to be dissolved, and its head,—“Jacob the Lutheran,”—by means of threats and injuries, forced for a season to recant. These two martyr-friars are soon made to pay the primitive penalty for believing in the Son of God. They are degraded and spoiled of their friars’ weeds. They are led out to the slaughter; and they go “joyfullie and merrylie,” protesting this day of their doom on earth to be the day long desired. They embrace the stake. They sing and praise the Lord. The fire is kindled beneath them. “Methinks ye strew roses under my feet,” is the only utterance that escapes their lips.

About the same time died by violence and fire, Henry Sutphen, a monk, in the “city of Dithmarsch, on the borders of Germany.” He stood as a faithful witness for Christ in a most ungodly town, where his testimony was rejected by most, and he himself at last most brutally put to death. Yet he did not live nor die in vain. “About that time,” writes the old historian, “many other godly persons, for the testimony of the Gospel, were thrown into the river Rhine, and into other rivers.” In Halle, Prague, Meltenberg, Vienna, &c., we find not a few faithful martyrs giving up their lives for Christ. The Word has gone abroad into every city. Satan rages. Man strives to check it. But in vain.

At Meaux John Clerk boldly preaches Christ and His free pardons in opposition to the Pope and his bought ones. His testimony is not heard. His town rejects it; and he himself is torn to pieces by inches, and “the residue of his life that remained in his rent body is committed to the fire.” Yet afterwards Meaux yields many martyrs.

But at Tournay John Castellane finds a more open

door. The Word of the Lord comes in power. His enemies lead him to the stake (1525); but his death is even mightier than his life. His constancy under shame and torture provokes very many, "so that not only a great company of ignorant people were thereby drawn to the knowledge of the verity, but also a great number, who had already some taste thereof, were greatly confirmed by his constant and valiant death." And here the old chronicler adds, "It would fill another volume to comprehend the acts and stories of all those who, in other countries, at the rising of the Gospel, suffered for the same; but, praised be the Lord, every region almost hath its own history-writer, who sufficiently hath discharged that part of duty."

At St. Hippolite, in Lorraine, Wolfgang Schuch, a German, labours with large success, though his day is cut short. The whole town casts away its images and idolatries, "so reformable God made the hearts of the people, and such affection they had to their minister." But Satan envies his success. The Duke of Lorraine threatens not only the minister with death, but the whole heretical town with sword and fire. Wolfgang stands forward in defence of his fellow-citizens, and of that Gospel which they had so heartily received. He writes, maintaining the innocence of the town, and also "opening and explaining the cause and state of the Gospel and of our salvation, consisting only in the free grace of God, through faith in Christ His Son." In vain. He must die. But his books must die first. They are cast into the flames before his eyes, and then he himself is placed amid the faggots, singing with a joyful voice the fifty-first Psalm, "till the smoke and the flame took from him both voice and life."

In Louvain arose the cry of "heresy,"—"Lutheranism,"—about 1540. The Word of God had penetrated the town, and many were listening to the grand news. The persecutor

kindled his fire to destroy the heretics, and twenty-eight men and women there went cheerfully to death for the name of Christ.

In "Gaunt, and other parts of Flanders," the Gospel spread itself abroad. Blessed and wide was the refreshing there. But the Adversary soon roused himself, and "great persecution followed, so that there was no city nor town in all Flanders wherein some either were not expelled, or beheaded, or condemned to perpetual prison, or had not their goods confiscated, neither was there any respect for age or sex; at Gaunt especially many there were of the head men, who, for religion's sake, were burned. . . . At one time as good as two hundred men and women together were brought out of the country about, into the city, of whom some were drowned, some buried quick, some privily made away, others sent to perpetual prison; whereby all the prisons and towers thereabout were replenished with prisoners and captives, and the hands of the hangman tired with slaying and killing, to the great sorrow of all who knew the Gospel."

Very largely had the shower fallen on Bohemia towards the middle of the century; for in the year 1555, no fewer than two hundred ministers and preachers of the gospel were banished out of the borders for "preaching against the superstition of the Bishop of Rome, and extolling the glory of Christ."

Locarno, a town on the Lago Maggiore, partook abundantly of the refreshing. The Word spread in that region till the Adversary prevailed, and the faithful were cast into exile. In their exile, however, they preached the Gospel to other places, God making the wrath of man to praise Him.

Two good men, by name Francis Warlut and Alexander Dayken, went through various countries, preaching the Gospel and visiting the churches. At last, being pressed in spirit as to their own native district—the lower parts of Germany,—they returned thither to make known the tidings

of eternal life which they had preached elsewhere. Hindered from gathering the people within the town of Dornick to which they came, they went to a back field or wood without the walls, and there, under the free sky, they preached Christ to eager crowds. When thus met, the enemy came upon them; thirty were taken, and the two preachers beheaded. This was in 1562.

The extent to which the Gospel spread in France at this time is almost incredible. Not in Germany—not in England—not in Scotland—had it spread farther, if indeed so far. The early Church-history of France is too little known. It is a marvellous one; not the less marvellous, because Satan was permitted so fearfully to vent his rage against the saints, alternately whitening its plains with martyr-ashes and soaking its soil with martyr-blood, till that kingdom, which promised to be like the garden of the Lord, was scorched into a desolate wilderness, where little else has thriven since save the poisonous growths of infidelity and crime.

In Aymond de Lavoy we see the faithful preacher of Christ's gospel, gathering out a church at St. Faith's, in Anjou, and soon after suffering martyrdom at Bordeaux in 1543, after having wrought no mean work for his Master in these parts.

In William Husson, the Rouen Apothecary, we see the zealous *tract-distributor*. Taking his stand at the palace-gate when the Council was dismissing, he "scattered certain books concerning Christian doctrine and the abuse of men's traditions." The magistrates are roused. The gates are locked, and diligent search made "in all the inns and hostleries" to discover the bold aggressor. The search was fruitless. William, after scattering all his tracts, had quietly returned to the widow's house in the suburbs where he was lodged, and having saddled his horse, rode away. Not finding him in the city, posts were sent out into all quarters

to track his steps. The second search was successful. Our fervent apothecary, with his freight of tracts about him, was at length seized. "The said William was taken by the way, riding to Dieppe, and brought again to Rouen; and, being there examined, declared his faith boldly, and how he came of purpose to disperse those books in Rouen, and went to do the like at Dieppe." His sentence was the fire. But first his tongue was cut out; and being bereft of the power of speech, he was made to listen to the sermon of a Carmelite friar. "When the friar had ceased his sermon, this godly Husson had his hands and feet bound behind his back, and with a pulley was lifted up into the air; and when the fire was kindled, he was let down into the flame—where the blessed martyr, with a smiling and cheerful countenance, looked up to heaven, never moving nor stirring, till he let down his head and gave up his spirit. All the people there present were not a little astonished thereat, and were in diverse opinions: some saying that he had a devil; others maintaining the contrary, saying, if he had a devil he should have fallen into despair. This Carmelite friar aforesaid was called Delanda; he was afterwards converted and preached the Gospel."

Thus it was by voice and by book that the Gospel took its way over France. A noble forerunner this of the *col-porteurs* of later times!

The five students of Lausanne are worthy of record. On that university the shower seems to have in some measure fallen. These five young Frenchmen, from different provinces, had learned the way of life whilst busied in their studies. A common faith and hope drew them together. Then they remembered home and friends. They called to mind parents and relatives that knew not God. They came to a common resolution to return home in order to make known that salvation which they had found at Lausanne. They did so; but their time was brief. The enemy found

them, and soon brought them to the stake. In the first bloom of opening youth they were called to martyrdom. Most joyfully did they die, witnessing for Christ, and bidding one another be of good cheer.

No city, no village, no region, seemed to escape the falling drops. Everywhere throughout the kingdom the refreshing came down. On monasteries, on universities, on the palace and on the cottage, on the mountain and in the valley, the cloud seemed to rest, and from its ample skirts it shook the plenteous rain.

Time would fail to tell the wonders then wrought in France. What results have been seen since these days? What have the sword, the fire, the rack, the gallows done? Is that kingdom to be visited again? Is vengeance or blessing to be the answer to the martyr-cry of two centuries? Has the blood of the saints watered or scorched the soil?

H. B.

REVIEW OF THE MONTH.

NOTHING shows more strikingly the decline of the Papacy in Spain than the law lately carried in the Cortes, by a majority of 168 to 12, authorising the sale of ecclesiastical property. What may be the present value of the Church's possessions in Spain we do not know, but at the commencement of the century a fifth part of the arable land of the kingdom belonged to the clergy; and as, besides being badly cultivated, it paid no taxes, it was a double source of national impoverishment. The measure which has now appropriated to public exigencies this sacred soil we are not called on to discuss, but the fact that it was so easily carried shows how times have changed in the Peninsula. The Pope has recalled his nuncio, but the authorities betray no nervousness under threatenings which would once have made the "most Catholic" kingdom tremble.

For some years remarkable success has attended the missions of American Protestants among the Armenians of Turkey, and latterly there has been a great demand for the Christian Scriptures among officers in the Turkish army and among the Mahometan inhabitants of Constantinople. The excellent Dutch ambassador at the Porte, Count Zuylen de Nyevelt, says, "Humanly speaking, there is probably no place in the world so well disposed as Turkey at the present moment for receiving the Gospel. The Armenian Church is in great agitation, and as the Koran loses each day its prestige and authority in the eyes of the people, all souls in the least serious will have to make the choice between Protestantism and Catholicism, since strong and traditional antipathies separate them from the Greek Church." Efforts are now making by the French and English Governments to induce the Porte to declare the renunciation of his religion by a Mussulman no longer a capital crime. Should these representations succeed, as there is every reason to hope that they will, a better day will ere long dawn on Turkey.

We have been much interested by an account in the American papers of the opening of a commodious place of Christian worship for the Chinese at Sacramento, California. At the first service there was a crowded attendance.

From the third Report of the "Working Men's Educational Union," it appears that, in addition to 175 previously issued, they have during the past year published 75 diagrams for the purpose of illustrating lectures on such subjects as Nineveh, Missions, the Literary History of the Bible, and the Reformation in England. It is gratifying to find that not only have lectures on such subjects commanded large and enthusiastic auditories, even in regions as remote as Constantinople and the Crimea, but that in many instances working men have themselves been the lecturers, and have successfully ministered to the amusement and instruction of their companions.

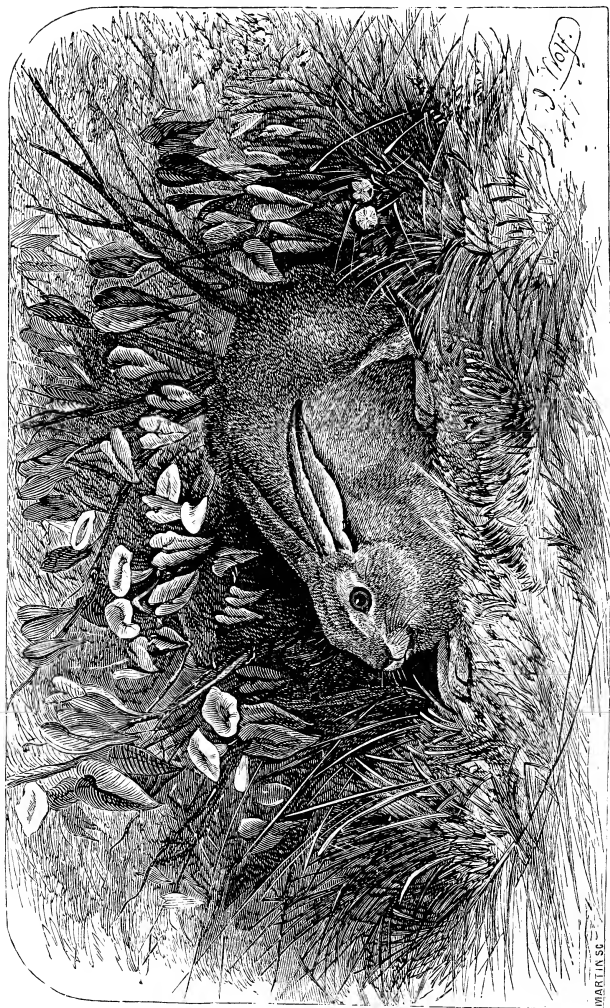
Acting on a principle which is likely to be followed in the public offices of our own country, the Government of India has thrown open its civil appointments to public competition. The first series of twenty has just been awarded. There were 113 candidates, who underwent an examination so planned that high attainments in languages, or in mathematical science, or in English scholarship, would ensure an appointment. Of the 113 candidates 73 were furnished by English seminaries, and of these 17 succeeded; 23 were furnished by Ireland, of whom 2 succeeded; 15 were furnished by Scotland, of whom 1 succeeded. Of the 19 candidates whom Oxford supplied, 8 were successful; of the 32 sent up by Cambridge, 6 succeeded.

From the 1st of January, 1815, to the close of December, 1854, the number of emigrants who left the United Kingdom was 4,116,958,—an average of somewhat more than a hundred thousand a-year. But of this number as many as 2,446,802 have emigrated during the last eight years. The highest number was in 1852, viz. 368,764. In the last seven years 7,520,000*l.* were transmitted to Ireland by emigrants to enable their friends and relations to join them in the new country.

The gross revenue of the Post-office for the financial year was 2,689,916*l.* 9*s.* 10½*d.* After deducting the expense of management the net revenue was 1,129,051*l.* 5*s.* 10*d.*

Mr. Pepper is now exhibiting at the Polytechnic Institution a bar of aluminium produced by M. St.-Clair Deville in the private laboratory of the Emperor of the French. From its admirable properties—to which we have already called the attention of our readers (“Excelsior,” vol. i. pp. 237, 238,)—it is to be hoped that this metal, of which the ore is common clay, may soon be obtained in sufficient quantity for economic uses. The medals commemorating Queen Victoria’s visit to Paris are to be worked off in aluminium, as well as in gold, platinum, silver, and bronze.





Syrian Hare (*Lepus Siriacus*).

ON THE EVIL ANGELS.

It has been reserved for some modern theologians to exhibit an inconsistency unknown to the infidels of other days. Formerly, all persons who rejected, or sought to invalidate, the statements of our Sacred Writers, used to profess themselves opponents of Christianity. But in these days the same arguments—merely revivals of what was advanced long ago by avowed Infidels—are brought forward by persons professing themselves Christians, and proclaiming their high veneration for the Gospel. It is as if the assailants of some fortress should assume the garb of its defenders, and thus obtain admission within its walls, that they might batter them more easily than from without. And what makes these attacks the more insidious is, that they are made by several different persons, of different views; each preparing the way for the next. One, perhaps, while professing—and very likely with sincerity—to be a believer in the truth of the Gospel-narrative generally, yet imputes to the writers a pious fraud in reference to such and such a particular point. Another goes a step farther, and considers them to have falsified their narrative in some *other* things which must have come under their own knowledge. And these, again, are followed by another, who rejects or explains away all the remainder as a tissue of fables. And yet all these equally profess themselves to be Christians, leaving us wholly at a loss to decide where Christianity ends and Infidelity begins.

With regard to no one point, perhaps, has this inconsistency of professed believers been more glaringly displayed than in the modern theories respecting the existence and agency of Evil Spirits; nor is there one upon which the

attacks have been more insidious, and, at the same time, more presumptuous and daring. And considering in how many places, and how very strongly and distinctly, our Lord and His Apostles speak on the subject, it might well be matter of startling surprise to persons not acquainted with the *irrational* interpretations of (so called) rational theologians, to learn that there are persons professing belief in the Sacred Writings, who yet deny the existence of any evil spirits, or explain away every passage in which mention of, or allusion to, the agency of any such beings is to be found.

That such passages are of very frequent occurrence in the discourses of our Lord and the writings of His disciples every reader of the New Testament must readily admit. Numerous as are the notices of holy angels, there is still more frequent mention of evil angels. The cause of this may probably have been, that whatever good offices men may receive from the former, are never to be *sought* from them. They are never to be *called on*, and their aid invoked. It is likely, therefore, that their existence and agency are the less frequently mentioned, for fear men should be led into the error of false worship. And although in the Old Testament, and especially in the earlier books of it, there are much less frequent allusions to evil spirits than in the New, yet there is no such entire omission of the subject as a hasty reader might be led to suppose. For the gods worshipped by the ancient heathen were believed by the Jews, and, indeed, by the early Christians also, to be really-existing Evil Demons. For we find the Jews speaking, for instance, of "Beelzebub as the Prince of the Demons;" and we know that Beelzebub was the Philistine god worshipped at Ekron.* And we find the Apostle Paul saying,†

* 2 Kings, i. 2. See also 2 Chron. xi. 15; Leviticus, xvii. 7; and Psalm cvi. 37.

† 1 Cor. x. 19, 20.

“The things which the Gentiles sacrifice, they sacrifice unto Demons, and not unto God.” Demons, it is to be observed, is the word in the original, which our translators have in several places (unfortunately) translated “devils;” not recollecting that Devil is the *proper name* of an *individual*, and, accordingly, is never employed by the Sacred Writers in the plural number, as applied to evil spirits, whom they designate by the terms “unclean spirits” and “demons.” And this title “demons” is the very one given by the Pagans themselves to the objects of their worship. Thus, though to the Jews these beings were an abomination, and the worship of them regarded as impious, while the Pagans built temples, and offered sacrifices and prayers to them, their real *existence* was admitted by both. And it was, therefore, quite necessary that our Lord and His Apostles should make some mention of Beings which were, in fact, the very gods the Heathen intended to worship. Supposing the truth to have been, that both parties were under a delusion, and that no such Beings as these Demons had any existence, except in a distempered imagination, then it would have been requisite distinctly to declare this on divine authority, and to free men’s minds from all vain hopes and superstitious fears in that quarter. On the other hand, supposing some such beings to have a real existence—supposing some—even though a few out of many—of the gods worshipped by the Heathen, to have agreed, even though only partially, with the real description of actually-existing demons; supposing this, a mention of them was evidently needful in order to put men on their guard against either been seduced into the worship of them, or any other danger from them; and also for the purpose of dispelling any false terrors, and of giving assurance of Christ’s effectual protection, and final triumph over those adversaries. Accord-

ingly, we find the Sacred Writers making frequent mention of "Evil Angels," or "Unclean Spirits," or "Demons." And though in accordance with the practical character of the whole of their revelation, which, in the total absence of all minute details calculated to minister merely to human curiosity, stands eminently distinguished from all pretended revelations coming from an enthusiast or an impostor—they give comparatively scanty accounts of these Evil Spirits, still they make repeated mention of their existence and agency. From allusions in various parts of Scripture it appears that these evil spirits are "Angels who kept not their first estate;" that is, who, by disobedience and rebellion against God, fell from the condition in which they had once existed, and becoming pre-eminently depraved enemies to the Lord, sought and still seek to corrupt mankind; watching to seduce men to their ruin,— "seeking," as the apostle Peter expresses it, "whom they may devour." And it appears, moreover, that these evil Beings have a Prince or Leader, called Satan (the Adversary), the Wicked One, the Devil, of whom our Lord expressly speaks as exercising authority over a host of evil spirits, called by Him the angels of the devil (as when He speaks of "everlasting fire prepared for the devil and his angels"); and exercising his influence by their agency, and thus being present to the minds of many men at the same time; since a leader of a numerous host may be said, and commonly is said, to do that which is actually performed by his servants or soldiers under his direction. Numerous are the references to the existence of this great, spiritual, personal Enemy of mankind. See, for instance, among many others, Matt. xiii. 25–39; John, viii. 44; 1 Tim. iii. 6; 2 Tim. ii. 26; 1 Pet. v. 8; 1 John, iii. 8; Heb. ii. 14; Rev. xx. 2. And, truly, it is an awful, an appalling thought, that we

may be this moment, and at every moment, in the presence of malignant Spirits, who are watching occasions for our destruction.

And still, notwithstanding these reiterated and express declarations, there are persons who, professing to believe in the Scriptures, yet maintain that it is a thing utterly incredible that God should permit any such being to exist. And as for what Christ and His Apostles have said, their expressions, it is contended, are to be understood as a mere "accommodation" to the popular notions of the day. When they speak of any temptation, or any affliction, bodily or mental, as proceeding from Satan or his angels, this, we are told, is only a condescension to vulgar prejudices, and what is meant is merely a "personification" of moral evil,—a metaphorical description of man's vicious propensities or natural diseases. Thus they explain away the narrative, given by three of the Evangelists, of the temptation of our Lord in the wilderness, from the direct attacks of Satan into a parable or figurative description. Now it is observable, that this is not one of those transactions which are mentioned incidentally in the course of the narrative of other matters, nor is it a transaction which the Sacred Writers had witnessed, and which they might be supposed to have mentioned, merely because they had witnessed it; but it must have been brought to their knowledge by Jesus Himself, either relating it orally to His disciples while He remained on Earth, or else communicating it by the inspiration of His Spirit afterwards. And yet, we are told, that we are to regard this narrative as a poetical figure of speech, representing Satan as a real personal agent, while, in reality, no such being had any part in the transaction, or ever existed at all. But even supposing the language employed to be such as might conceivably bear such an interpretation, still Jesus *knew* that the hearers would *not* so interpret it, but would

understand it in the literal obvious sense ; in which, indeed, it has been understood by nearly all Christians for eighteen centuries. Now, when we remember that he who speaks that which is false in the sense in which he is aware he will be understood, is manifestly a deceiver, not the less, though he may have some hidden meaning which is true, what are we to think of the moral notions of those who can assert, that He, whom they profess to acknowledge as the Heaven-sent Teacher of the Truth, led His disciples to believe that He was tempted by a personal agent, when He *knew* that there was no such being concerned ? Him whom these bold interpreters profess to venerate as having “come into the world to bear witness of the truth”—Him and His Apostles they represent as not merely conniving at, but deliberately confirming and establishing, a superstitious error ! For it must be remembered, that this belief of both Gentile and Jew in the existence of evil spirits, if an error, is certainly one which the Lord and His Apostles decidedly inculcated. They do not merely leave uncontradicted, or merely assent to what is said by others as to this point, or merely allude to it incidentally, but they go out of their way, as it were, to assert the doctrine, and most plainly and earnestly dwell upon it. Not only do they make distinct mention of a single individual evil being as the great enemy of man, and of his angels or emissaries, but numerous instances of their agency are recorded by them. Indeed, among the miracles related by the Sacred Writers, as wrought by Jesus and His disciples, none are more prominently put forward than the cures of persons possessed by evil spirits or demons (hence the word *demoniac*), and our Lord Himself and His disciples earnestly dwell upon this class of miracles as a distinguishing mark of the Messiah. “If I,” said He, “by the Spirit of God cast out demons, then is the kingdom of God come upon you.” And so fully was this recognised

as a distinguishing mark of the Messiah, that on the occasion of one of those cures (recorded in Matt. xii. 22), we find the people exclaiming, "Is not this the Son of David?" And when Jesus sent forth the seventy disciples to proclaim "the kingdom of God is at hand," we are told that the seventy returned from their mission with joy, saying, "Lord, even the Demons are subject to us through Thy name;" to which He replies, saying, "I beheld Satan as lightning fall from heaven."

And yet, plainly as these narratives set forth the reality of demoniacal possession, there are persons found to deny it, even among those who acknowledge the existence of evil spirits, and by whom still greater violence, if possible, is done to the words of the Sacred Writers. These rash and profane interpreters require us to believe that when Jesus spoke of "casting out demons," he meant curing natural diseases; and, proceeding on the supposition that the belief in demoniacal possession was peculiar to the Jews, they have ventured to maintain that all the supposed "demoniacs" were no other than madmen, whose insane fancies led them to believe themselves possessed by evil-spirits, and that Jesus chose to accommodate Himself to the prevailing superstition, by calling the cure of these patients "the casting out of the unclean spirits."

That there *are* great difficulties on the subject is undeniable: but some persons see more difficulties in it than really exist. One of these difficulties arises from the circumstance that there is no reason to believe in the existence of demoniacal possession in the present day, or for many ages past. While no proof has ever been given of the occurrence of any such infliction, that could satisfy any but the weakly-credulous, there have been, on the other hand, several instances on which it has been fully proved that cases of pretended possessions and cures have been tricks

contrived by crafty impostors, taking advantage of the superstition of the ignorant vulgar. Hence, some persons have inferred that *all* such accounts have their origin in credulous ignorance, and that nothing of this kind ever did occur at all. But would it not be most absurd to infer, from the fact of notes being forged, or base metal passed off for gold and silver, that there never was such a thing as a genuine bank-note or good coin, and that gold is not really existing metal, but imaginary? In fact, it is the existence of genuine notes, and coins, and real gold, that has given rise to forgeries and to mistakes. And in like manner, the real occurrence of well-authenticated miracles is just what would naturally lead men to feign or to fancy them when unreal. And so it is also with demoniacal possession. We cannot, indeed, conclude positively, that if no such thing had ever occurred, nothing of the kind would ever have been pretended or imagined; but supposing such cases did at one time occur, and were cured by Jesus and His Apostles, we may be quite certain that, whether from the mere mistake of the credulous, or from artful contrivances of designing men, false accounts, in *imitation of the true*, would not fail to arise, as we see take place in all other matters also. Now the abuse and perversion, and spurious imitation of truth, is no fault of the truth itself, but of man's weakness or wickedness. But if what the Evangelists have recorded is *not* true—if Jesus and His Apostles confirmed a prevailing superstition, instead of curing it—the shocking consequence must follow, that *they are answerable* for all the mischiefs that have arisen from an error which they fostered, instead of removing it.

Another of the difficulties, to avoid which the plain words of Scripture are explained away by these profane interpreters, is of their own creation. For their assumption that the Jews alone, of all nations, had this belief in de-

moniacal possession, is utterly contrary to the fact. And yet this notion is not uncommonly entertained, even by educated persons, not unacquainted with the works of the Classical Writers, though the Greek word used by them, and by the New Testament-writers, is the same; and though the allusions by the heathen authors are frequent to possession by a *demon* (or by a god; the two words being employed by them with little or no distinction) as a thing of no uncommon occurrence. The Greek word, from which our word enthusiast is derived, signified a person thus possessed. We read also in the Book of Acts (chap. xvi.) of a damsel—not in Judea, but at Philippi, of Macedonia, a Roman colony—possessed by “a spirit of divination.” And the heathen writers represented the priests and priestesses of their celebrated Oracles as possessed by a like Spirit of divination. The reality of the existence of demoniacal possession, in connexion with these Oracles, matters not to our present purpose, for which it is enough to be fully aware, and keep steadily in mind, that such was the *belief* among those Pagans no less than among the Jews. The only difference was (and this also has aided in misleading many as to the fact) that the Heathen, as already observed, worshipped as their gods the Beings, or supposed Beings, which the Jews held in detestation as “unclean spirits.”

Nor is this assumption more entirely gratuitous than their other assumption, that all the recorded cases of the casting out of demons were cures of *insane* patients, which is utterly at variance with the Sacred History. For, though it is certainly not an improbable thing in itself that some madmen should entertain a groundless fancy of being thus possessed, yet that the Jews did not attribute madness, generally, to evil spirits, and that they distin-

guished it from cases of "possession," is quite certain. For we read, for instance (in Matt. x.) that "they brought unto Him all sick people that were taken with divers diseases and torments, and those that were *possessed with demons*, and those who were *lunatics*, and those that had the palsy, and He healed them." And what is more, we find, on the other hand, that the cases recorded are far from being exclusively those of madness; for we read (in Luke, xiii. 11) of a spirit of "*infirmity*," and (in Matt. xii.) of a case of *blindness* and *dumbness*. The belief of the Jews, therefore,—be it, in any case, correct or erroneous—as to this agency of evil spirits, could not have been founded on what was said by insane patients concerning their own condition. And as the fact that madness, and infirmity, and blindness, and dumbness, may be caused by bodily diseases, was as well known by the Jews as by us, there must have been some marks—we cannot at all tell what, as there is no record of any such—which led them to distinguish, as they undoubtedly did distinguish—whether rightly or wrongly—what afflictions were, and were not, caused by the direct agency of demons.

Such are some of the gratuitous assumptions upon which these interpreters base their theory, when they represent our Lord and His disciples as accommodating themselves to popular superstition in calling natural diseases the casting out of demons. And this they are represented as doing, not in *some* instances merely, but in *all*. And this is a circumstance which makes a most important difference; for if any one believes that there was such a thing as demoniacal possession, but that in this or that particular instance it was supposed to exist where it did not, (just as, among us, one disease is sometimes mistaken for another)—such a person may think that there was no need to give the

patient's friends any explanation of the case, since it would be a matter of little or no consequence, in a religious point of view, as making no difference as to belief generally of the doctrine in question. But the case is quite different with one who believes that there *was no such thing* as demoniacal possession at all ; for he must represent Christ and His disciples as lending themselves to a prevailing error,—as using words which in the sense they knew they must be understood by their hearers, taught what they were conscious was in that sense not true, and thus sanctioning and confirming a doctrine which they knew to be false. And this error—supposing it to be such,—one not relating to speculative points of natural science, for instruction in which Revelation was not given, and, therefore, upon which popular language was used as the only intelligible one, but on a point intimately connected with religion, and, moreover, a matter in which the contradiction of the popular belief would have been easy and intelligible—being, in fact, the very doctrine then held by the Sadducees. If such a connivance at religious error can be, in every case, justifiable, in this, at least, it would have been most completely inexcusable. It would not have had even “the tyrant's plea”—necessity—in its favour. For, supposing the Jews to be ever so much wedded to their belief in demoniacal possession, and to have been disposed to reject with scorn any one who should have merely told them that those patients whom they supposed to be possessed were not so, and that the popular opinion was all a delusion,—supposing this, still, if any one who gave them such an assurance did, at the same time, cure those very patients, every one would have readily believed him. To take a parallel case : there are districts in Europe—and even in our own country—where the vulgar sometimes believe that children,

or others, afflicted with some unusual kind of disease are bewitched by some malicious neighbour, and they would be highly displeased with any one who should simply *tell* them that this is a groundless fancy. But if we *could* go among these superstitious people, and give them assurance, at the same time instantly and completely *restoring the sufferers to health* by a word or a touch, and this not merely in one instance but in *all* the cases, and these very numerous ones that were brought before us, no one can doubt that we should readily be believed.

The connivance, therefore, at superstitious error—the confirmation and propagation of religious delusion which these interpreters impute to Jesus and His followers, would have been one of the most *gratuitous* and most inexcusable of all the “pious frauds” that ever were committed.

Now if our Sacred Writers judged such a “pious fraud” as this justifiable and right, any man of common sense and common honesty must distrust them altogether. For “How can one be sure,” he may say, “at what point their pious frauds are to stop? How, in short, can one be justified in giving any credit at all to those whom he supposes to have been knowingly and wilfully deceiving their hearers?” And yet, shocking and monstrous as the thought is of wilful deception on the part of a teacher sent from God, nothing less is laid to the charge of the Lord Jesus by those who, while professing to venerate Him as such, impute an accommodation to popular superstition to Him, who, had He accommodated Himself to the religious prejudices of His country, would not have been rejected and crucified by His countrymen.

Surely to any man of common sense and common honesty no difficulty, to escape which such an hypothesis has been adopted, can bear any comparison with that raised by it. But excessive eagerness to get over some perplexing diffi-

culty often leads rash men to overlook entirely the difficulties — perhaps much greater — which may be on the opposite side. In the present case, however, those who, in order to get over the difficulty involved in the idea of God's permitting any evil being to have power to molest mankind, impute to the Lord Jesus and His Apostles the most base and disingenuous sacrifice of truth, in compliance with popular prejudice, and also resort to the most extravagant and forced interpretation of their words, for the sake of avoiding the plain meaning of them, gain nothing after all, and do not even go one step towards removing or lessening the difficulty. The permission of evil spirits is only one branch of that great and insuperable difficulty—the permission of evil in the universe. The difficulty is just as great to explain how *any* evil, however small, should exist, as to explain *all* that does exist in the world. The mortifying and distressing consequences, indeed, of any evil may be greater, but the *difficulty* of explaining it, when that difficulty amounts to an impossibility, must be the same in one case as in another. Since total impossibility does not admit of different degrees, the smallest amount of misery and the greatest are equally inexplicable. All that we can say is, that for some *unknown cause* evil is unavoidable; and that being the case, it would be a folly to *set limits* to the operation of an *unknown cause*, or to wonder at one of its effects more than at another. Surely there is no greater difficulty—great though it undoubtedly is—in the permission of evil *spirits* than of evil *men*. For instance, that so many should be sold as SLAVES and often to tyrannical masters—that it should be permitted to bad men to seduce others, as they are usually most anxious to do, to follow their evil example—all this is as hard to explain as that any one should have been exposed to any kind of affliction from Demons. We need not, indeed, feel any wonder that an evil being—

whether man or demon — should *endeavour* to degrade others into his own condition ; but that either should be permitted to *succeed* is a difficulty we cannot at all explain, though yet no greater in the one case than the other. If we cannot account for Satan being permitted to labour for the ruin of man's soul, as little can we account for men's being so permitted, which yet, we see, is the fact.

And yet, obvious as this is, the principal personage in a tale by an author of considerable repute, is represented as being at length convinced of the non-existence of evil demons, by the argument that God would never permit any evil being to have power to molest mankind ; and this argument is represented as being urged, and successfully urged, while a pirate ship was actually in sight, the crew of which had just been ravaging the country and committing all kinds of atrocities ! The speaker and the hearer of the argument are represented as having this before their very eyes, and yet without perceiving that it completely refuted what was urged !

This particular objection, then, must completely fall to the ground, since it is an objection which lies equally against what every one knows to be true. If we suppose some happy world—far distant from our own—in which sin and suffering have always been wholly unknown, and if the inhabitants of such a world were to doubt the possible existence of either bad *spirits* or bad men, there would, in this, be nothing very absurd. But for those who have the experience of the various evils produced by bad men to deny the possibility of any *other* evil beings, as a thing which could never have been permitted, is an absurdity which, to be refuted, needs only to be plainly stated.

R. W.

(*To be continued.*)

SCENES IN HISPANIOLA.

V. THE HOG-HUNT.

A SHORT ride now sufficed to bring the travellers into a very different region from any they had yet passed through. They had surmounted the first peaks of the mountain-range ; the glen with its limestone precipices was left behind ; a deep, virgin soil of soft, black, humid mould was under their feet, crowded with trees of gigantic size and stature ; and the air, delightfully fresh and cool, indicated the great elevation of their position. The vegetation, the flowers, the birds, were all as distinct from those of the scorched lowlands, as if they grew in another country far remote.

Now they skirted some *conaco*, or provision-ground, a little patch of cultivation embosomed in the tall forest, where those plants of human food are reared to which these lofty equable climates and rich moist soils are so congenial, and whence the markets of the towns are chiefly supplied. The plaintain threw out its long broad leaves of lively green, planted in rows, interchanged with the *yuca*, from whose poisonous root the valuable cassaba bread is made ; or with the *coco*, whose enormous, arrow-shaped leaves collect the dew in large quantities in their hollows. The yam, trailed over poles, and forming festoons and arbours, reminded the Spaniard of the vineyards of his own Castile. Various sorts of peas and beans with gay blossoms twined over the fences, and pumpkins and melons were sprawling around the bases of the taller plants. The arrow-root and the ginger shot up their taper heads ; and the *aji*, or capsicum pepper, was studded with its showy scarlet fruits.

Here and there a field was devoted to the *añil*, or indigo, and much more common was that noblest of corn-plants, the yellow maize, with its nodding spikes of feathery blossom. Many trees of use or beauty (or both) shaded the crops; oranges and citrons of exquisite flavour; the yellow-fruited *cirucla*; the lofty *marañon*, with its singular apple-like fruit full of vinous juice, and bearing its crooked nut strangely stuck on its extremity; the *maimon*, resembling an enormous apricot, fragrant and delicious; and many other noble fruit trees were there in profuse luxuriance, intermixed with the tall jointed *yagrumo*, the *javillo*, that ejects its nuts from wooden boxes, bursting with a report like that of a pistol; the *calabazo*, that bears cups and various household utensils ready-made; and the *algodon*, or mountain cotton, covered with its delicate white tufts, as if sprinkled with snow.

Then, again, their way lay through the sombre and solemn forest, where elegant ferns choked up the path; and towering trees, the *Santa-Maria*, the *higueron*, and the *algarabo*, the areca-palm, and the tree-fern, sheltered the nestling birds that dwelt in them in a security far beyond the reach of the adventurous sportsman's fowling-piece. The *majaguo*, a lofty tree covered with great expansive blossoms of scarlet and yellow, was a splendid sight; and not less beautiful were the enormous flag-like leaves, of the tenderest emerald verdure, and the great vermilion blossom-bract, that indicated the position where the *bijao*, or heliconia, reared its stately form. The large, waxy flowers, like those of the white water-lily, of the *copey*, were perhaps the most beautiful of all, spangling the dark green glossy foliage; but still more attractive to the stranger were the parasitical plants, in immense variety, that sprang from every fork, and climbed up every trunk.

“Who chaunts the miserere in this magnificent sylvan

temple?" asked Don Carlos of his companion, as two or three long-drawn notes fell on the ear, clear and full as the tones of a flute, and with a measured interval like the first solemn notes of a psalm.

"It is the *musico*, a little bird found only in these elevated solitudes, which always utters his notes in this deliberate way. But look up, Don Carlos! see the *guacamayos* over-head. Those are birds we never see in the lowlands."

He looked, and saw in rapid flight far over the summits of the loftiest trees a pair of those beautiful parrots that we call *macaws*, glowing in the sun, with all the glory of blue and yellow plumage, and long tails of intense scarlet. They swiftly sped along, making the sky to ring with those peculiarly harsh shrieks for which these magnificent birds are infamous.

The travellers had drawn up for a few moments to eat some of the fruits which everywhere invited the plucking hand, and to refresh themselves out of a flask which the provident Gomez produced from his saddle-bag, when a horseman dashed by at full speed. He was a handsome mulatto, young, tall, and of that sunny style of beauty that is only produced when the Spanish blood is slightly crossed with the African. His black locks, crisped, but not woolly, played over his ruddy-brown face; his large, liquid, black eyes were replete with roguish mirth; and his lips, full without being thick, displayed a set of teeth of perfect regularity and pearly whiteness. His outfit was a curious mixture of wealth and poverty; his scanty garments were of home manufacture; his noble steed was guided by a massive bit and chain, which, as well as the ornaments of the head-gear, were of solid silver, but the rein was of raw hide; and a single spur, also of silver, long-rowelled, and of

old-fashioned Spanish workmanship, was strapped upon his naked heel.

But these particulars would not have been noticed had not Gomez recognised an acquaintance, and arrested his headlong speed.

“*Tente! tente! Poco a poco!* Is it life and death with you, Juan? What now? the padre or the midwife?”

“Ha! is it you, Gomez? By the rood, neither priest nor wise woman is in the wind to-day, but a hog-hunt, friend Gomez,—a hog-hunt! Old Velasquez hunts the jabali to-day, and the whole country-side gathers to it: there is Carlos Zapata and his cousin, and brown Romero, and Acuña, all the way from your Pardave hills, and Mateo the stout smith, with his leash of bloodhounds, and young De Valdera to sing us a good song after the day’s work is done, and lots of jolly dogs besides. We shall have rare sport, for the woods are full of pigs. Arn’t *you* coming? for I can’t wait.”

“One word! where is your rendezvous?”

“We were to meet at Velasquez’s conaco when the sun was four hours high, and it’s full that now,” measuring the altitude with his hand. “We shall jerk the pork to-night at Romero’s conaco, down in the Black Valley. *Buenos dias!*”

“Stay, moisten your throat before you go. Take a drop of vino tinto.”

“They say, ‘Gossips and frogs drink and talk,’ and I must needs stop to do the same. Well, what matter? *Salud! Señores.*”

He buried the rowel of his single spur in the flank of his horse, and was soon lost in the leafy alcoves, while the friends followed more leisurely.

The war was in full progress before they reached the rendezvous, and the confused noises that resounded far

through the woods guided them to the scene of activity. A crowd of stout fellows of all colours, from the white of pure European blood, through various mixtures of race, to the coal-black Coromantee, were scattered about, some armed with the machette or hanger, some with a heavy hunting-knife, but most with a long lance having a broad blade of peculiar shape. Dogs, too, were present, eager and open-mouthed; they presented as much diversity as their masters; there were the smith's bloodhounds with pendulous muzzle, stern, noble expression, and deep voice, the very aristocracy of dogs; several of the ferocious Cuban mastiffs; a powerful Spanish bull-dog; and a wiry terrier that had found its way thither from Britain; but the majority were mongrel curs of mixed and undistinguished breed, yet in general sufficiently true and bold for the work on which they were employed.

Nor was the game wanting. Hundreds of wild hogs were now assembled in these lofty woods, congregated for the purpose of feeding on the nuts which were now shedding in abundance from the areca-palms. Herds were scudding to and fro, alarmed by the sound of the pursuit, yet not knowing whither to run. Several of these groups the travellers had glimpsed, as they scampered awkwardly away among the trees, grunting and squealing, each family headed by its patriarchal boar.

And now they are in the midst of the exciting scene. The men shout and swear, the dogs bark, the hogs grunt, and champ their tusks; and these sounds are mixed with howls and screams of rage and pain from the wounded on both sides. The dogs single out a young, well-tusked boar, and eagerly pursue him; he flees to the shelter of a gigantic fig-tree near, in the angle of whose enormous root-spurs he ensconces himself with great coolness and judgment, and

instantly faces his opponents. The foremost of the dogs rushes on him; the boar, taking one forward step, meets his assailant with a short upward stroke of his muzzle, and in a moment the wretched hound is sent flying over the spur with his bowels protruding. Others barked and snapped, but though several ribs were inflicted, the gallant boar himself remained unscathed, until one of the hunters rushing in, struck the broad lance with skilful aim between the neck and shoulder, and needed not to repeat his blow.

In another place a half-savage negro might be seen falling on a boar which the dogs had pinned to the ground, and cutting its throat with his heavy knife; his swarthy countenance lighted up with a brutal joy, which told how familiar was the scene to the recollections of his early African days.

These personal encounters were full of danger, and many severe cuts were sustained from the sharp, projecting tusks of the old boars. These often made a furious defence, breaking through the crowd of surrounding dogs to attack the men, whom they seemed sagaciously to regard as the real authors of their misfortunes.

Various and wild were the cries that now echoed through the green-wood glades, usually so silent and peaceful. Calls for help under the pressure of a too furious boar, savage imprecations at the escape of a prey, the growl of rage and disappointment when a well-aimed stroke was evaded, cries of pain under severe wounds, shouts of direction, of admonition, of instruction, of warning, passed from one to another, all uttered together, made, with the bestial sounds, a very Babel of confusion that was absolutely deafening.

“*Tente! tente! jabalina preñada!*” growls the surly old Velasquez, with a furious oath, to a youngster who was

about to slay a gravid sow that his dogs had overpowered. "Let her go, fool! would you destroy the hope of the breed?"

"*Este alerta!*" shouted another, with a sharp brevity that caused Don Carlos to turn round quickly, but only in time to see an enraged *verracó* rushing towards him. The Spaniard was unarmed, and the little red eye of his assailant, no less than the champing tusks which tossed off the adhesive foam like flakes of snow about his brindled hide, spoke of danger imminent and intense. There was no time to run, no weapon to meet the peril, when Gomez's faithful cur sprang with one bound between the parties, and received the brunt of the assault. The infuriated boar's powerful stroke tore open the flank of the brave dog, and laid him in agony on the mossy earth; the intervention, however, was deliverance, for in the next instant the ferocious brute was impaled on the extended lance of a prompt and bold avenger.

At length the decline of the sun warned the party that other labours remained to be performed. The carcasses were collected, and the first-fruits given, as was the rule of forest-law, to the dogs, a tribute to their valuable aid. Every hog was disembowelled, and the offal, with the heads and feet, was the meed of the canine actors in the fray. Each stalwart man then prepared to shoulder a carcass; but as the game slaughtered was found to be too abundant thus to be disposed of, a curious resource was adopted. Several of the largest hogs were skinned, and the hides quickly made into rude sacks; then the flesh of the others was separated from the bones, an operation which was performed by means of the stout hunting-knives, with surprising dexterity, and packed into the sacks, until as many loads were formed as there were men. Such of them as had come to the *conaco*

mounted slung a couple of sacks like panniers over their beasts, and Señor Gomez did not disdain in this manner to bear his part of the burden.

“Whither now, Gomez?” said his guest.

“To the *ajoupa* in the Black Valley. We shall bivouac with the party to-night. You will see life in a new phase.”

“With all my heart. Let me see the end of this strange hunting.”

Toilsome was the journey to the hunters who were on foot, already foot-sore, and weary with the exertions of the morning's combat, and now having to carry a heavy load for several miles through a tangled and almost pathless forest; ever stumbling over roots and rocks, their feet catching in the loops and withes that stretched on the ground, sharp-spined briars tearing their garments and their limbs, and ever and anon gashing their faces across; now slipping down the wet and slimy declivities, now clambering with hands and knees over the angular blocks of stone, or the spurs of the enormous trees. A hundred times did the poor fellows throw off their loads in despair, and dashing themselves upon the earth, bewail, with the strong contortions of muscle, and the furious energy of rage that a southern clime engenders, their hard lot, forgetting in the childish inappropriateness of their fury to the occasion, that it had been of their own voluntary seeking, and vowing with fearful curses that they would never touch the load again, only to take it up in a few moments and resume their march.

Meanwhile Gomez and De Badajaz had spurred on and reached the conaco in the Black Valley. Here they found the guard, whose duty it had been to make preparations for the reception of the hunting party and the game. These had come to the spot early in the day, had erected an *ajoupa*, or

hut, by cutting and driving into the ground stout stakes, which they had interlaced with green wattles, basket-fashion, made from the tough stems of slender shrubs which they knew well how to select. The roof was thatched with palm-leaves, and a thick bed of soft fern was spread over the whole floor. Provisions of various kinds were brought in and prepared; yams, sweet-potatoes, cocoes and plantains were roasted; a batch of cassaba bread was baked; onions, garlic, celery, and many other European pot-herbs which grow in these mountain-gardens, besides the mucilaginous *okro*, the *tomato*, the hot *agi*, the spicy *pimenta*, and many sorts of legumes that are peculiar to the tropics, were collected for a huge olla-podrida; and a vast pile of fruits was heaped up in a corner of the *ajoupa*; while for drink a demi-john of rum from old Velasquez's sugar-estate was considered amply sufficient, in conjunction with the clear stream that flowed down the valley, as the Creole inhabitants were usually temperate in drinking.

In addition to these preparations a number of forked poles were cut and stuck upright in the ground in fours, about six feet apart every way; other poles were collected to lay across these, and stout green rods to form on these latter impromptu gridirons for the cooking of the pork.

On the approach of evening the watchful guard having prepared everything, began to make the fires: one under the great pot which was kept boiling, and others under the different gridirons, the rods of which were, however, not laid across until the arrival of the meat. The advent of the two cavaliers announced the coming party; the guard at once rose, stirred and cleared the fires, which now burned brightly, being composed of glowing coals, and opening the sacks, began to cure the pork. The rest now quickly dropped in, each as he arrived throwing down his burden

with murmurs and curses varying in virulence according to the individual temperament of each, and stretching himself on the soft and welcome couch of leaves within the *ajoupa*.

The guard seize a couple of hogs, and splitting each into two, set the rods, and grill the four sides. Slices are thrown upon the coals and are quickly served up, with the various accessories already prepared, to satisfy the first demands of keen appetite. The hunters eat, and forgetting alike their weariness and their vows, become vociferous. All chatter together, each performs over again the feats of the morning, recounts the prowess of the boars, praises the most worthy of the dogs, and boasts of the temper and efficiency of his own weapon.

In the meanwhile, the rest of the booty is prepared for jerking. The carcasses are cut up, and the bones carefully taken out, as had been roughly done with some on the field. The flesh is then gashed on the inside, filled with salt, and a mixture of pimenta and pepper. Some flitches so prepared are suspended from the branches of trees over fires of green wood, to be smoked; after which they are packed in aromatic leaves. Others are reserved to be dried in the sun, for which purpose some of the party reside at the *ajoupa* for several days. When all is prepared it is conveyed to market in canvass on the rivers.

The noisy inmates of the hut, and the jovial groups who surrounded the fires gradually became silent, and soon all were stretched in sleep, except one or two who kept watch by turns over the smoking fires, and guarded the meat from vermin, and from the prowling *xibaro*. Φ

NOTES ON NORWAY.

No. IV.

A SHIP-TRAP. AALESUND. CUSTOM-HOUSE OFFICERS.
BOTTLE-SINKING. TRONDHJEM. THE CATHEDRAL.
THE BISHOP. THE KING'S BIRTHDAY. THE CAVE OF
TORGHATTEN.

THE 29th of June was somewhat squally. About mid-day we reached the lofty island of Bremanger. The island may be rudely represented as a triangle, whose base is towards the sea, and its apex towards the land. The consequence is, that when the wind is westerly, accommodating itself to the channels between the mainland and the northern and southern sides of Bremanger, it sweeps towards the apex of the triangle, as a north-westerly wind on the one side and a south-westerly wind on the other side. It follows that ships sailing within Bremanger with a fair wind, often find that they cannot get out by either channel. It is, in fact, a trap for unwary vessels, and we found ourselves caught in the trap. We were anxious to keep outside, but Laascn, with an invincible preference for these inner channels, would not yield, and we were not fully aware of the risk we ran of detention by the course adopted. We scudded along with a stiff breeze astern till we reached the apex, where we were caught in a moment by the counter-gale that swept along the northern channel, and both wind and water were in furious agitation at the point of junction. A little management disentangled us from this hubbub of contending currents, and in a few minutes we glided into a small land-locked bay, where there was scarce a breath of wind to

ripple the surface. Here we cast anchor, and were quietly informed by Laasen that here we must remain till the wind changed. The case was now all too clear, for the wind was careering madly *up* both channels. Anxious as we were to hasten to the north, the "fix" we were in was somewhat tantalising. But, to our great joy, about ten P.M., the wind so moderated and so veered as to admit of our tacking out by the northern passage.

Soon after noon, on the 30th, passing within shelter of low rocky islands, we entered the bay of Aalesund. Here we were twice boarded by custom-house officers, who were, however, very civil, and gave us no trouble; they were satisfied with asking the name and destination of our yacht, &c. We were never during the whole of our western cruise even asked for our passports. The harbour is good, and the place is one of the stations of the fortnightly government steamers. Aalesund is famous as the birth-place of Olaf, the great Scandinavian conqueror. Two of us landed, taking with us three large pitchers to be filled with milk and cream, which ranked among our principal luxuries. We succeeded after some difficulty and the payment of nineteen skillings. In prosecuting our search for it, we entered what proved to be the authorised store of the place, replenished with all kinds of goods, from broadcloth and canvass down to pins and sugar-candy. The storekeepers (called Handelsmaende) in the north are authorised by government, and enjoy a monopoly of the trade of the district. This custom is thought necessary, in order to induce persons of respectability to open shops, and it does not seem to be regarded as a grievance.

Aalesund is a clean and picturesque town, lying embosomed amongst mountains. Its population is about 900, reckoned large for these latitudes. Its wooden houses are painted white, and roofed with brilliant red tiles. The

houses are surrounded on the level of the second floor with heavy wooden galleries, in which the inhabitants are fond of lounging. There are large warehouses for storing wood, oil, and especially stock-fish. The situation of this little town is beautiful, its general appearance lively and attractive, and such as to indicate a very tolerable amount of comfort, and even wealth.

During the evening we sailed past Molde, from which the magnificent scenery of the Romsdal may be said to commence. The view of the mountains at this point was very fine, even as seen from our position, some miles from land. About midnight we passed the lighthouse of Christiansund. About this point there are numerous reefs of sunken rocks, made apparent this night by the foam of the roaring breakers that boiled over them with tremendous fury. There was a heavy ground-swell, but it was not till it encountered one of these obstacles that it showed its terrible force. We felt here, as frequently in Norway, the solitude scarcely less than awful, as our little bark, alone upon the waters, threaded her way among foam-crowned reefs of sunken rock, while the only sounds that relieved the silence were the roar of breakers and the screaming of sea-birds.

On the morning of the 1st of July we found ourselves off the lighthouse of Aedö, a small island north-east of Christiansund, but at no great distance from it. The wind had failed us in the night. We took advantage of the calm to write a batch of letters, to be ready for the Trondhjem post. At night we sunk an empty corked bottle by aid of a heavy lead, with a line of 222 fathoms in length, without reaching the bottom. On raising it to the surface again, we found of course that the cork had been thrust in by the pressure, and the bottle filled with water from below; the cork was thrust into its proper place again in reascending, only reversed.

The temperature of the water so raised was 45° Fahrenheit, the surface water being at the time 53° . The water from below was much salter, too, than the surface water.

On the morning of the 2d a brisk breeze was blowing, which took us rapidly up the Trondhjem Fjord. The scenery of this fjord is of no great interest, the hills being of low and uniform height, a great contrast to the fjord-scenery to which we had lately been accustomed.

Owing to the extreme spaciousness of the houses, Trondhjem, which really contains only 14,000 inhabitants, occupies a large area, and would be supposed by a stranger at first sight to be much more populous, though the unfrequented state of the streets is calculated to correct such an impression. The houses are of wood, and painted for the most part of a reddish-brown colour, which gives the town a sombre appearance. The day of our arrival was cloudy and cold, and altogether our first impressions of this once renowned northern capital were of a somewhat gloomy cast. One redeeming feature was found in the bright show of flowers in almost every window, which throughout Scandinavia indicates the value of the inhabitants for the treasures of their brief summer.

The views of Trondhjem from the surrounding heights are pleasing, the ancient cathedral in the midst of the city, and the substantial fortress of Munkholm (Monk Island) in the bay, being among the most striking objects. The hills surround the upper part of the fjord so as to give it an entirely land-locked appearance, but are not to be compared in picturesqueness with those of Bergen. The account of Trondhjem given by Dr. Clarke, in which he describes it as unsurpassed by the Bay of Naples, must be set down to sheer enthusiasm.

On Sabbath, the 3d, we worshipped in the venerable cathedral amid a numerous congregation. The cathedral is still

an imposing building, though much fallen from its best condition, when surmounted by eighteen lofty spires. It was founded in the tenth century, and received numerous additions in after ages, but suffered severely from a fire which occurred in 1719. After service, passing into the churchyard, we witnessed a funeral. A band of youthful choristers chanted appropriate psalms around the open grave, while the officiating minister, making use of a tiny spade provided for the purpose, thrice cast upon the coffin after it was lowered, fine gravel, supplied in a box for the purpose, each time repeating the words, "From dust camest thou ; in dust dwellest thou ; from dust shalt thou arise." There was no prayer or address at the grave. The mourners wore crape on their hats. The relations, eight or ten in number, after the ceremony, ranged themselves in line before the door of the cathedral, uncovered and shook hands in silence with the guests as they departed. We saw three coffins deposited and the mourning groups retire, thus reminded that the essentials of man's brief history are in all lands the same, his life, his death, his heart-woes.

In this churchyard formerly stood the coronation chair, or throne, in which the Norwegian kings used to be crowned, and before which their subjects swore allegiance to them. It was of stone, with approaches on all the four sides.

Monday, the 4th of July, being King Oscar's birthday, we had the opportunity of witnessing the holiday aspect of the city. There was service in the cathedral in the forenoon. The place was densely crowded, and presented an imposing aspect. The interior of the cathedral is disfigured by successive tiers of pews one over the other, to the number in some parts of four. These were all thronged with gaily-attired citizens and peasants ; and resembled more the boxes of a theatre than the pews of a church. The white-washing of the interior greatly impairs the general effect.

An address was delivered by the Bishop on the mutual duties of princes and subjects. We were struck with the plainness of the assembled women, and with the numerous cases of decrepitude we observed.

After service, Mr. Knüdtzen (uncle of the consul), to whom we were indebted for much kindness and courtesy, conducted two of us to the residence of the Bishop, to whom he introduced us. The house of the Bishop bore the air of substantial comfort, not at all that of grandeur. Bishop Darrè is a man of refined and cultivated manners, and received us with charming courtesy. He had not yet doffed his official robes, and in his silk gown, great ruff, gold cross and chain representing some order, he presented a dignified and imposing appearance. We had much interesting conversation with him. He told us that there is not a little genuine piety in his diocese, especially among the peasants, who come often from distances of thirty or forty miles to church. He spoke hopefully, too, of the increasing piety of the youthful clergy. He asked, with much interest, what we could tell him about the growing desire for the Bible in Tuscany. He gave us also some account of the ambulatory character of the schools in remote parts of his diocese, similar to those in the West Highlands of Scotland.

We gladly availed ourselves of Mr. Knüdtzen's invitation to accompany him to a public dinner to be held in the clubhouse, in commemoration of the King's birthday. The party consisted of about seventy, including the principal civil and military authorities, all distinguished by some badge of office. The Bishop was also present. The courses somewhat resembled those of a German *table d'hôte*. The toasts were given between courses. "The King" was drunk with enthusiasm. "Gamlè Norgè" (old Norway) was received with unbounded demonstrations of delight, the whole company rising and joining lustily in the beautiful national air, "For

Norgè." Sweden was received somewhat coolly. The national jealousies, however, seem to be dying away. We were told, that a few years ago they would never have dreamt of proposing Sweden on such an occasion. In compliment to us, England was proposed and received with great cordiality, "God save the Queen" being sung. Among the songs sung was one composed expressly for the occasion by the Civil Governor, of which printed copies were laid beside every cover. In drinking healths with one another, we observed that after bowing, and in some instances touching glasses, they drained the glasses, each holding them up to show that they were empty, and then again bowing.

The company rose from table after little more than two hours, when they adjourned to a public picture-gallery, in a handsome apartment above that in which we had dined. The paintings were not generally of a high stamp; those of Tiedeman and Gude were the best. For some time we promenaded in this gallery, enjoying pleasant conversation, while coffee was served, and most of the company, Bishop and ecclesiastics included, accompanied it with a cigar. Among others we met with a naval officer of high intelligence, who had been engaged for twelve years in surveying among the magnificent islands to the north, which we were about to visit, and about which he gave us much interesting information. Also a young man, who did not conceal his objection to the pictures and statues which are found in all their churches: he told us, too, that very many took the same view of the matter. After an hour or less spent in this way, the company dispersed. We felt not a little gratified at having the opportunity of witnessing the mode of conducting such a public entertainment in this remote city, and that it passed off in so orderly and decorous a manner.

We were anxious to start for the north the same night, but found it impossible to move the pilot whom we had en-

gaged. There was no particular reason for the delay, but it was unreasonable to expect a man to start without sufficient notice. Going to his house, and finding that my representations had some effect with his wife, I hoped that she might influence her husband. But he was as deaf to her as he had been to us. So we lost a good breeze, and did not get off till the middle of the following day. The pilot proved on acquaintance to be a most obliging and admirable fellow, but no amount of amiability avails to make a Norsk seaman start without ample notice. The traveller on the Norwegian coast should leave a margin for delays arising from this cause. We shall afterwards find that a better and more expeditious system prevails on the post roads of the interior.

We left Trondhjem greatly pleased with the courtesy and intelligence of the inhabitants whom we met, an impression which was increased when we revisited the city on our return.

Our course for a day or two lay among the scenery of the outer islands, with nothing very marked to distinguish it. Off the Vigten Isles we encountered the heavy roll of the Northern Ocean without any intervening barrier of rock to break its force.

On the 7th we reached the singular conical island of Torghatten, remarkable for a vast cave that passes through the whole of its breadth towards the summit. Torghatten means the hat-rock, so called in allusion to its form. We extract some notes of our visit to it, taken at the time.

“By half-past seven, the scarcely perceptible breeze had wafted us gently within rowing distance of Torghatten, which had been in sight all day. We effected a landing with some difficulty owing to the unusual impediment of a flat shelly beach, our indispensable steward William and —— carrying the rest of us ashore shoulder-high. We wandered over a long boggy stripe of pasture-land, on which cloud-

berries, bilberries, and crow-berries (scarcely yet ripe), abounded. We had some difficulty in finding the entrance to the cavern, not being able to learn its exact position. After various exploring expeditions, however, and a rugged scramble, we stood at the mouth of this curious perforation. It passes through the rock in a direction from north-east to south-west. While some of our party were perched eagle-like upon jutting rocks in the entrance sketching the cavern, the rest of us scrambled over its torn and riven floor to the other end. We roughly estimated the dimensions of the cavern as follows : height at the northern entrance 140 feet, at the southern, 240 ; length 740 feet, width about half the height. The only previous estimate with which we are acquainted is that of the celebrated Bishop Pontoppidan of Bergen. He gives the length at 6000 feet and the height 300, unquestionably an extravagant estimate. The floor was covered with vast blocks of rock which had become detached from the roof. Some of them bore marks of having fallen recently. The roof was not less rugged and irregular than the floor, hanging down here in solid heavy blocks, there in light and fringy projections, fitting drapery for this mysterious cavern. It is no doubt one of the retreats of Nippen when brewing storms, and affords admirable opportunities for a sudden surprisal of his neglectful votaries on either side of the island. A visit to the wild storm-worn rocks of the outer coast, and the profound shades of the mountain-hemmed and fathomless fjords, makes one wonder less at the superstitions current among the inhabitants. The sides and roof of the cave present a cracked and cleft appearance from flaws in the formation of the rock. Vast numbers of bats, disturbed by our voices, left their retreats in the roof, and hovered and screamed above us : which was all the more interesting as bats are scarcely met

with, if at all (according to Gosse), in the Arctic regions, from which we were not now distant, Torghatten being situate in lat. $65\frac{1}{2}^{\circ}$. Through the aperture in the dark rock, which formed a singular framing to the picture, appeared a beautiful vista of rocky islets dotting the glassy sea ; and in a snug cove in one of them a picturesque Norsk *Joegt* lying at anchor. Below the southern extremity of the cave was a rapid descent terminating in green and oozy fields, in which stood a pretty wooden farm-house. The sun was still bright and strong, and we were startled upon being warned that it was half-past nine o'clock. Times and seasons are very apt to be forgotten in these latitudes, for lack of the natural reminders of them. We turned our steps downwards, and were met by another glorious view of island and fjord, the mist having entirely left the loftiest summits, and the declining sun shedding a rich rosy hue upon them.

“At a cottage on the beach we supplied ourselves with two ewers full of milk and cream. With characteristic Norsk indolence, however, the good housewives, though sure of an advantageous settlement with us, could scarcely be induced by many words and after long delay to produce the commodity. This done at length and payment made, they were greatly delighted, and as usual shook hands with us most cordially. We were soon on board again, watching the sun as he descended behind the flank of Torghatten ; and most of our party, spell-bound by the enchantment of this glorious midnight, lingered till they saw him rise behind the jagged peaks of the ‘Syv Søster’ (Seven Sisters). In our course northward, coming into the line of the cavern, we were able to see right through the island from the deck of our yacht.”

R. H. L.

SCRIPTURE ZOOLOGY.

THE HARE. (*Lepus Syriacus*.)

THE Hare was one of the animals which the Jew was strictly forbidden to eat (Lev. xi. 6 ; Deut. xiv. 7), and it was one of "the four-footed beasts," in all likelihood, which the Apostle Peter saw in that celebrated vision recorded in the tenth chapter of the Acts, as it is the third out of the four species of Mammalia specified to the Jews as unclean. The Hebrew name for the hare is *Arnebet* ; this name was doubtless applied to the hare generically, as more than one species of the genus is found inhabiting the countries of Egypt and the Holy Land. The Arabs who wander in the region of which Mount Sinai is the conspicuous centre, call the hare of the valleys of Arabia Petraea *Aerneb*, while the same name is also given by the natives of Syria to another species or variety of hare, first scientifically described in the "Symbolæ Physicæ" of the Prussian travellers Hemprich and Ehrenberg. The Jews on the Continent at the present day, faithfully observing the Mosaic law,—in Germany avoid eating one species of hare, *Lepus timidus*, while the same people in Poland abstain from using the flesh of another species, the *Lepus variabilis*. The travellers above cited found the hare far from uncommon on Mount Sinai, although they seldom succeeded in killing it, for the hares, on the slightest alarm, take refuge among the rocks, where they can easily conceal themselves from view. The Arabs eat the hare whenever they succeed in trapping it ; and that it was pursued in Egypt in ancient times is clear from the pictures of it on some of the monuments preserved in the British Museum.

In Temperate climates hares abound much more than in the warmer regions of the earth, and their flesh, at least that of some of the species, is much more savoury. In this country the common hare abounds, and is highly prized as delicate and dainty food, though we were not a little surprised to read in the report of the "Times" Agricultural Commissioner for May 1850, that as many as 5000 of them were sold, in 1849, in less than eight weeks to one dealer at Wickham, all of which had been procured from the Marquis of Hertford's estate in Suffolk. Well might Christopher North when comparing the English and Scotch hares exclaim, "What are your great big fat lazy English hares, ten or twelve pounds and upwards, who have the food brought to their very mouth in preserves, and are out of breath with five minutes' scamper among themselves, to the middle-sized, hard-hipped, wiry-backed, steel-legged, long-winded mawkins of Scotland, that scorn to taste a leaf of a single cabbage in the wee moorland yardie that shelters them, but prey in distant fields, and before the dogs seem not so much scouring for life as for pleasure?"* Dr. Fleming says that hare-skins, collected by itinerant dealers, are annually sold in the February market at Dumfries, sometimes to the amount of 30,000.† Its fur is used in the manufacture of hats and for many other purposes. In some parts of the Continent the fur is spun into threads and woven into cloth; and Pliny tells us that in ancient times a similar use was also sometimes made of it. The foot of the hare, which is covered with a peculiarly close and somewhat twisted fur, makes a most excellent brush, and as such is used in some delicate operations, such as bird-stuffing; while Cowper found that in confinement his hares were indefatigably nice in keeping themselves clean with this very brush.

* Recreations, i. p. 26.

† British Animals, p. 21.

The chase of the hare is still a favourite pastime, and though with the author of the “Seasons” we may say

“Poor is the triumph o’er the timid hare,”

yet, a few centuries ago, so much was its chase a popular amusement, that ladies formed hunting-parties of their own and coursed for hares; nor need we say how passionate is the devotion with which many of the sterner sex still follow it. We read in the Life of Southey that his father when a young man was placed with a grocer in the city of London; and, adds the Laureate, “I have heard him say, that as he was one day standing at this person’s door, a porter went by carrying a hare, and this brought his favourite sport so forcibly to mind, that he could not help crying at the sight. This anecdote in Wordsworth’s hands would be worth as much as the Reverie of Poor Susan.”* When the father went to Bristol he took a hare for his device; it was painted on each side of his door, and its figure was engraved on his shop-bills.

Among the last writings of Charles Lamb, and one which was “destined to be, in sad verity, the last essay of Elia,”† was a witty communication on the receipt of a hare, full of his usual humour. We may make an extract from its more sober part, although it was far from the intention of the writer to give a sedate history of the subject of his favourite dish. “The ancients must have loved hares. Else why adopt the word *lepores* (obviously from *lepus*), but for some subtle analogy between the delicate flavour of the latter and the finer relishes of wit in what we most poorly translate *pleasantries*? The fine madneses of the poet are the very decoction of his diet. Thence is he *hare-brained*. Harum-scarum is a libellous, unfounded phrase, of modern usage.

* Life and Correspondence of Robert Southey, i. p. 7.

† Letters of Charles Lamb, by T. N. Talfourd, ii. 84.

'Tis true the hare is the most circumspect of animals, sleeping with her eye open. Her ears, ever erect, keep them in that wholesome exercise, which conduces them to form the very tit-bit of the admirers of this noble animal. Noble will I call her in spite of her detractors, who from occasional demonstrations of the principle of self-preservation (common to all animals), infer in her a defect of heroism. Half a hundred horsemen, with thrice the number of dogs, scour the country in pursuit of puss across three counties ; and because the well-flavoured beast, weighing the odds, is willing to evade the hue and cry, with her delicate ears shrinking perchance from discord,—comes the grave naturalist, Linnæus perchance, or Buffon, and gravely sets down the hare, as a—timid animal. Why Achilles, or Bully Dawson, would have declined the preposterous combat.” The poet of Olney was taught, by keeping hares, to hold the sportsman’s amusement in abhorrence : “ He little knows what amiable creatures he persecutes, of what gratitude they are capable, how cheerful they are in their spirits, what enjoyment they have of life, and that, impressed, as they seem, with a peculiar dread of man, it is only because man gives them peculiar cause for it.” In the third book of the Task he has devoted some fine lines to the defence of this animal, having at the time had one

“ Whom ten long years’ experience of my care
Has made at last familiar.”

He promised,

“ If I survive thee I will dig thy grave,
And when I place thee in it, sighing say,
I knew at least one hare that had a friend.”

Poor Puss died on March 9th, 1786, after having lived nearly twelve years with the poet, and he wrote its “Epitaph.” To his sprightly pen we are indebted for many interesting particulars of the manners of hares in captivity, and he has shown that hares, like men, have indivi-

duality of charater. Thus "Puss," as he called one of his pets, was soon familiar, and seemed happier in human society than when shut up with his natural companions ; while on "Tiney" the kindest treatment had not the least effect. His surliness was matter of mirth to the gentle bard, who records that "Tiney" performed his feats with such a solemnity of manner, that in him, too, he had an agreeable companion. He records the strong and fearless character of "Bess," whose courage and confidence made it tame from the beginning. Cowper found their countenances so expressive of the peculiar character of each, that by looking only on the face of either of them he knew which it was. The poet incidentally mentions, that during the day one of his hares betook itself to the shelter of a cucumber vine, "sleeping or *chewing the cud* till evening." In Leviticus and Deuteronomy the hare is said to chew the cud. The hare, strictly speaking, is not a ruminating animal, having only one stomach ; but both the poet and the sacred historian seem to refer to a habit of the hare, recorded by Dr. Thomson, the late Professor of Materia Medica in University College, that, namely, of keeping a portion of its food in the pouches of the cheeks, to be brought forward for occasional mastication.*

The hares have a peculiar character in their teeth, which distinguishes them from all other Mammalia ; their upper incisors are double, that is, they have behind each of the two conspicuous front cutting-teeth another of smaller size. The inside of their mouth and the under parts of their feet are covered with hair like the rest of the body. They are all marked by having long ears and a short tail, and by their hind-legs being much longer than the fore, so

* Note to his edition of Thomson's "Seasons," p. 276. The great Blumenbach, in his "Handbuch der Naturgeschichte," 12th edit. Göttingen, 1830, remarks, that both the hare and the rabbit *seem to ruminate*,—"scheinen wiederzukauen."

that in running up hills they have an advantage over their pursuers. The colour of their fur accords with that of the places they usually frequent. Thomson has accurately described the hare in its form:—

“ She sits
Conceal’d, with folded ears ; unsleeping eyes,
By nature raised to take the horizon in ;
And head couch’d close betwixt her hairy feet,
In act to spring away.”

In the most inclement parts of the world hares are found. This species (*Lepus glacialis*) in winter is entirely of a snow-white colour, and in Greenland and other parts of the Arctic regions it does not seem to lose this colour even in the summer. Sir John Richardson gives an instance of its power of getting out of danger : when his party were on the Northern Coast of America, they landed on a rocky islet, which, though not above three hundred yards in diameter, was the home of an Alpine hare. The whole party went in pursuit of this poor creature, but so skilfully did it avail itself of the shelter of the rocks, and it retreated from stone to stone with so much cunning and activity, that no one got a shot at it, though the hare was never able to conceal itself from view for more than a minute or two at a time. Dr. Sutherland* observed, when he was on the Arctic expedition with Captain Penny, that this species can burrow in the snow ; one burrow he observed eight feet in length. He was surprised to find how fat the Arctic hares were, even in places where the vegetation appeared peculiarly scanty ; and it seems that in winter the berries of the Alpine arbutus, the *Empetrum nigrum*, and the bark of a dwarf willow, afford them nutritious, if not very plentiful diet. A. W.

* Journal of a Voyage in Baffin’s Bay, ii. p. 78.

NOTES ON GREAT PICTURES.

PROFESSOR TULP, OR "THE ANATOMY," BY REMBRANDT.

IN the Museum at the Hague, in the Picture Gallery, is a remarkable painting of several men in black, standing and seated round a dead body; this is the celebrated Professor of Anatomy, Tulp, preparing to dissect a corpse, in the presence of his class. It is an early and elaborate work of the most renowned of all the Dutch painters, Rembrandt van Rhyn; it was painted for the Surgeons' Hall at Amsterdam, in the year 1632, as inscribed on the picture, when Rembrandt was about twenty-five years old only. The picture contains altogether nine figures, of the natural size, but shown in half-length only: the corpse is slightly foreshortened, the feet being near the spectator to his right, and in shadow. Close to them, and taking attention from them, is a large open folio; the professor, in his hat, occupying almost half the picture on this side, is demonstrating the muscles of the forearm and hand. As a group of portraits this picture is, perhaps, unrivalled for the skill of the arrangement; and considering Rembrandt's age at the time, the mastery shown is wonderful; the effect of the whole, owing to the very skilful treatment of light and shade and colour, is magnificent, and yet the execution is very careful. It shows exactly the just medium between laborious finish and *bravura* of execution.

In the time of Sir Joshua Reynolds it was still in its old place, and he has not failed to notice it in his interesting diary of his "Journey through Flanders and Holland in 1781." He says, "The professor is dissecting a corpse which lies on the table. To avoid making it an object disagreeable to look at, the figure is but just cut at the wrist.

There are seven other portraits coloured like nature itself, fresh and highly finished. . . . The dead body is perfectly well drawn, a little foreshortened ; . . . nothing can be more truly the colour of dead flesh. The legs and feet, which are nearest the eye, are in shadow : the principal light, which is on the body, is by that means preserved of a compact form. All these figures are dressed in black."

For nearly two centuries this picture was admired in the place of its original destination, until the year 1828, when it was rumoured that the authorities of the College, in want of money, were negotiating its sale with a foreign picture-dealer, and the King of Holland with true patriotism interposed, and secured it for the National Museum of the Hague, at the great price of 32,000 florins.

Rembrandt's peculiar style, for which he eventually acquired his unrivalled reputation, is sufficiently developed in this excellent work. His great faculty was a true or complete perception of the various effects of local colour and light and shade ; and he is another example of the attainment of the highest excellence by indefatigable application and attention to a special province of his art. His power was more especially in light and shade, but he was also a great colourist, though in this respect not without rivals ; in the former quality he is yet unequalled, and himself the rival of nature. Nearly every quality in painting had attained to excellence in the Netherlands two centuries before the time of Rembrandt ; but to perfectly represent all those wonderful gradations of colour and effect produced by variations of situation, or degrees of light, was reserved for the son of the miller of Leyden.

Rembrandt Gerritz,—commonly called Rembrandt van Rhyn, because born on the banks of the Rhine,—was born in his father's mill, between the villages of Leyerdorp and Koukerk, near Leyden, June 15, 1606 or 8 ; there is a

view of this mill, with a cottage by its side, long since destroyed, among his etchings. He was the son of Hermann Gerritz and his wife Neeltje Willems van Zeitbrock, and being in good circumstances they sent their only son to the Latin school of Leyden; but as he showed a decided inaptitude for scholarship, and as decided a passion for drawing, his father wisely allowed him to leave the school and follow the natural bent of his mind. His first master was Jacob van Swanenburg, with whom he remained three years; he then studied a short time with Pieter Lastman at Amsterdam, and with Jacob Pinas at Haarlem.

Having thus devoted about four years to an art apprenticeship, he returned home and became a devoted student of nature. His peculiar faculty of observing and thoroughly seeing what he looked at, must have early shown itself, and he had already attained an excellence in his art before he was himself in any way aware of it. A friend, however, of the family, from the city, having seen, about 1625, some of these early essays, strongly recommended the young painter to take one piece to a picture-dealer at the Hague. Rembrandt went on foot, carrying his picture himself; and he was not less surprised than delighted to receive the (to him) large sum of one hundred florins (about eight guineas) for it, from the Hague dealer. He was so excited and so anxious to impart his good fortune to his parents, that to walk back was too slow, to go by the boat too mean, so he took a place by the coach then plying between the Hague and Leyden, and as he was too anxious about his treasure to get down with the others when the coach stopped for refreshment, he kept his place; and by a singular coincidence, harmonising with his own hurry to get home, the horses by some accident were startled, and ran off with him alone; they did not stop until they arrived at their stables at Leyden, where Rembrandt, thinking only of his own affairs, jumped from the coach, and made all haste home.

This was the beginning of a long success: in 1630 he settled in Amsterdam, where, on the 10th of June, 1634, he married Saskia van Uylenburg, a peasant girl of his own neighbourhood, but she lived only eight years after his marriage. Two years before this (1632) he had painted the picture of Professor Tulp, noticed above, commonly called "Rembrandt's Anatomy;" and in 1642 he produced the large picture of the "Night Watch," as it is called, now in the Museum of Amsterdam; it is a company of Arquebusiers going out to practice, the principal figure being the captain of the company.

As in the "Anatomy," all the figures are portraits. In this great work, those excellencies which are conspicuous in the "Anatomy" are here carried to excess, and Rembrandt's *manner* is already developed, though it does not display the vigorous handling of his later works. In this year, 1642, he was at the height of his fortunes, but it was the year in which his wife died. His property, from an inventory taken at the time, then amounted to the considerable value of 40,750 florins. This little fortune, so soon to be lost, was made both by painting and by engraving; Rembrandt's etchings ranging from the years 1628 to 1661, amount to nearly four hundred, and are among the choicest objects sought for by art-collectors; some of them are now worth almost fabulous prices, from 30 to 100 guineas; many of them were very valuable, even during his lifetime, as the "Christ Healing the Sick," known as the *Hundred Guilders* (eight guineas), because Rembrandt refused to sell it for less. His etchings appear to have been the principal source of his income; he used to sell them at different stages of their completion, and is said to have thrown off from some plates even as many as seven different proofs.

Sandrart tells us that he realised an annual income of about 2500 florins (200*l.*) from this traffic in his etchings and the sale of his pupils' copies of his pictures alone. This

was independent of the sale of his own pictures and his pupils' fees: each paid 100 florins per annum. However, notwithstanding this large income, after the death of his wife, his want of care seems to have wasted his substance, and in 1656 he passed through the insolvent court; this was a blow from which he appears never to have recovered. The closing years of his life were spent in such obscurity, that it is now doubtful where he lived, and where or when he died, whether at Amsterdam, London, or Stockholm; but it is most probable that he resided constantly in Amsterdam, and where, from a recent discovery in the archives, he appears to have also died. It is remarkable how few facts are really certain about the life of Rembrandt: his birth and death are both doubtful, Houbraken's statement is that commonly received, namely, that he was born in 1606 and died in 1674: other accounts state that he died in 1664; but M. Villot, in his catalogue of the Dutch, Flemish, and German pictures of the Louvre, has published a statement communicated by M. Scheltema, keeper of the archives of Amsterdam, to the effect that Rembrandt was buried in the Westerkerk October 8th, 1669; and from the amount of the fees paid (15 florins), it was apparently a most simple burial. The same uncertainty is attached to the time of his birth, for at his marriage, June 10, 1634, he declared himself to be twenty-six years of age, which would fix 1608, instead of 1606, as the year of his birth.

The obscurity and poverty of Rembrandt's closing years contrast remarkably with his middle career; the inventory of the goods and works of art which formed his property in July of the year 1656 is still preserved, and it shows a remarkable collection. He possessed as many as 134 pictures, of which 73 were by himself; he had also drawings and many books of prints, Italian drawings by Mantegna, and also studies from the antique; and

many prints after Raphael, Michelangelo, and other Italian, Dutch, and German masters; collections also of arms and armour, porcelain, costume, and old furniture. Yet this large collection, when sold by auction, did not produce 5000 florins, now not half the value, perhaps, of a single one of his own pictures contained in it. The house, which was also Rembrandt's, was more productive than its contents; the receipt for 6952 florins 9 stivers, arising from its sale and that of the ground, was given by Rembrandt's son, Titus van Rhyn, on the 5th of November, 1665. This is another circumstance which throws into obscurity the date of Rembrandt's death, which it is natural to assume must have then taken place.

Rembrandt was in many respects a remarkable man. He is said to have been a miser, and to have loved low society. That he was ever a miser is very doubtful: he loved money certainly, the various expedients he resorted to to procure it show this, but he loved it not for its own sake but for its use. He seems to have spent it all over his collections, which passion for collecting works of art eventually proved his ruin: his paramount love was his art. An instance of this is the story of his pet monkey. This monkey died unexpectedly while Rembrandt was engaged on a large family portrait piece, and being desirous to paint it as it lay, he at once painted it in the family picture, to the great horror of his patron; but nothing could induce him to paint it out again, and he preferred to sacrifice his commission and preserve the sketch of his dead monkey.

With regard to his associates, the Burgomaster Six is said to have been the only gentleman or man of rank that he ever associated with on terms of intimacy. Etchings and portraits of this person are among his finest works. The ex-burgomaster was fond of Rembrandt, and fitted up a painting-room for him in his country-house, just outside the

city; an etching connected with one of these periodical visits to Six has a curious history; it is called "Six's Bridge," or the "Landscape de la Moutarde." Rembrandt was fond of mustard with his boiled beef, but on one occasion there was none in the house; the burgomaster, however, desirous of pleasing his guest, sent into the town to procure some. Rembrandt observing that the servant sent was a phlegmatic-looking person, wagered with his host that he would etch the whole landscape seen from the window where they stood, before the man returned; and this he actually did, but it is only a slight sketch, being chiefly foreground, a small wooden bridge, with two men on it, being the principal object in the scene: the whole is, however, managed with admirable skill, and it is a most interesting plate. Mr. Burnet, in his "Rembrandt and his Works," has reproduced it, and also the portrait of the painter's kind patron, the burgomaster.

Rembrandt's great power was portrait. There are several fine examples of his works of this class in our own National Gallery, which possesses in all six portraits by him; of these, No. 243, a "Man's Portrait," is a magnificent example of his maturer style, which combines with a powerful effect of light and shade, such as Rembrandt alone knew how to produce, also a surprising freedom of touch: his own portrait in this collection is another fine example. The collection of the National Gallery shows also the same qualities applied to landscape and figure-painting; and it affords also one of the most valuable specimens of his earlier and more elaborate style, "The Woman taken in Adultery," painted in 1644. This picture is highly finished, and is a remarkable example of Rembrandt's passion for the representation of shade: nearly the whole picture is dark. Though peculiar in his taste, there can be no doubt that

Rembrandt's effects are perfectly true; the variations of effect between bright sunlight and absolute darkness are infinite, and Rembrandt's choice attracted him rather to the representation of degrees of darkness than the ordinary light adopted by most painters, though he did occasionally paint light itself. He is supposed to have acquired this taste from a representation of the brilliant concentration of light and its surrounding darkness from the peculiar effects he must have been familiar with, from his infancy, in his father's mill, the small apertures of which, serving the place of windows, would produce just such effects as we see ordinarily represented in Rembrandt's interiors.

In his historical works, as they are termed, Rembrandt's taste is universally considered to have been vulgar: his style of design was wholly deficient in refinement of form, and this not from ignorance, but from taste. He is said to have had a contempt for the antique, and the ordinary criticism of connoisseurs only excited his ridicule; his antiques, as he used to call them, were his collection of old armour, unique weapons, curious turbans, and various antiquated articles of dress which he had procured from Polish Jews. His manners, too, were rough, and he was impatient of criticism: when he had adopted the freer method of his later time, though this effect of freedom is said to have been produced only by great labour, he objected to having his pictures inspected too closely, and used to remark to the inquisitive, that the smell of paint was unwholesome; and if any objection were made to his very bold touches in his portraits, he would say that he was a painter, not a dyer.

Rembrandt's practice was wholly new, and instead of acquiring fame by the attainment of the ordinary excellences of his profession, such as constituted the ambition of every other painter of his school, his talents were of that extra-

ordinary nature, that he commanded it in spite of the most glaring inconsistencies of costume, and even of drawing in many cases the most gross and incorrect. In composition he was great; indeed, as Fuseli has powerfully expressed it, "Rembrandt was a genius of the first class in whatever relates not to form. In spite of the most portentous deformity, and without considering the spell of his chiaroscuro, such were his powers of nature, such the grandeur, pathos, or simplicity of his composition, from the most elevated or extensive arrangement to the meanest and most homely, that the best cultivated eye, the purest sensibility, and the most refined taste, dwell on them equally enthralled. He possessed the full empire of light and shade, and of all the tints that float between them. None ever like Rembrandt knew how to improve an accident into a beauty, or give importance to a trifle." (Lecture II.)

Rembrandt had many followers, of these Gertrand van den Eeckhont was the nearest imitator; and Ferdinand Bol and Govert Flink attained such excellence as to be his rivals in portraiture.

Of the capital picture the "Anatomy," an excellent engraving, with an outline index, by J. P. de Frey, was published in 1798. The notices of Rembrandt, mostly foreign, are numerous, but necessarily unsatisfactory: a good list of his works is given in Smith's "Catalogue Raisonné of the Works of Dutch and Flemish Painters;" and Burnet's "Rembrandt and his Works" gives some excellent imitations of his etchings, of the which there is a fine original collection in the British Museum.

R. N. W.

HARVEST HOME.

THE earth is full of God's goodness, and so is every season. Spring, with its opening blossoms, its exquisite odours, its suggestions of "good things not seen as yet;" and Summer, with "healing in its wings," with its balmy breezes, with its plenitude of life, and its placid consciousness of power,—each is a witness for Him whose name is Love. But the "fruitful season" is a witness still plainer, and one which speaks to the intelligence of all mankind. And, indeed, each contributes a several item in the testimony to the great Creator. For, if Spring says, "How great is His beauty!" and Summer, "How great His benevolence!" pointing to the rustling sheaf and the laden bough, says Autumn, "And how great is His bounty!"

Every season is a preacher, but of them all we are inclined to think Autumn the most popular and impressive. It needs no acquaintance with Nature's mysteries to understand his sermon; it needs no peculiar susceptibility to be carried along by his direct and homely eloquence. In the field which he is reaping the unlettered rustic sees the answer to the fourth petition of his daily prayer, and the Christian philosopher sees his heavenly Father giving bread to himself and his children, as plainly as if it were sent by the hand of an angel, or rained through a window in heaven. And whilst the purport of the discourse is so obvious, it is spoken to great advantage. Around there is little to distract, whilst there is much to fix the thoughts, to open the ear and soothe the spirit. Autumn is the sabbath of the months; and with its mellow light and listening silence, the whole land seems consecrated into a temple hushed and holy. Nor is there lack of ministers. The laden trees are priests, the corn-fields are choristers; and, yielding to the

tranquil influence, if you yourself be devoutly silent, their psalm will come into your soul:—

“ So Thou the year most lib'rally
Dost with Thy goodness crown,
And all Thy paths abundantly
On us drop fatness down.

They drop upon the pastures wide,
That do in deserts lie ;
The little hills on every side
Rejoice right pleasantly.

With flocks the pastures clothed be,
The vales with corn are clad ;
And now they shout and sing to Thee,
For Thou hast made them glad.”

To a mind that sees God in everything there is a special “joy in harvest.” It is a new pledge of Jehovah’s faithfulness:—another accomplishment of that ancient promise, “While the earth remaineth, seed-time and harvest shall not cease:”—a promise made all the more striking by the incidents which imperilled its fulfilment;—the winter that looked as if it would never go away, perhaps the drought which threatened to scorch the seed in the baked and burning furrow ; perhaps the cold skies which forbade the ear to fill, or the drenching floods, which, when filled, dashed it to the earth again ;—but past all these perils, or through them all, a mighty Providence has borne the sustenance of a world, and, as it spans the clouds of the dissolving equinox, the rainbow asks on behalf of the great Covenant-maker, “Hath one word failed of all that God hath spoken?” And so it proclaims the loving-kindness of the Lord, the care and munificence of the great Provider. It is not a mere subsistence he secures to the children of men, but it is a feast of fat things ; not only the bread which strengthens man’s heart, but the wine that makes him glad, and the oil

that makes his face to shine,—all the variety of fruits, and grains, and herbs, and spices; nor bread for the children only, but crumbs for the creatures under the table. Nor at this season can we fail to mark the minuteness of forethought and munificence of kindness with which our heavenly Father feeds the fowls of the firmament, the profusion which not only fills the barn of the husbandman, but which, in every forest and every hedge-row, has a store-house for those pensioners of His who can take no thought for the morrow. With its banquet-hall so wide and so populous, with its heaps of abundance, and its air of open-handed welcome, Harvest is the season which tells us of God's hospitality.

Besides the palpable Providence,—the visible nearness of a God most gracious and merciful,—a material element in the joy of harvest is the reward of industry.

If the sleep of the labouring man is sweet, so is that labourer's bread. The fields are bare: the year's work is done: and as he nestles among the sheaves, so glossy, dry, and fragrant; as he surveys the golden heap, fresh-sifted on the threshing-floor; as he watches the snowy powder flowing from between the revolving cylinders; as he sits down with his rosy children to the household loaf, that bread has to him a flavour which no science can impart,—those sheaves have a grace and a beauty which no pencil can reproduce, for no artist can espy. That bread has the pleasant flavour of personal industry: that garner concentrates in itself a year of his own toil-worn history. And now in the snug comfort of his cottage, and amidst rainy gusts prophetic of winter, it calls up to complacent memory the frosty morning when by lantern-light he yoked his team,—the grey and windy noon when he sowed the seed,—the day when to save the tender crop and the crumbling furrows, he battled with the swollen brook and banked out the thunder-torrent;

—the weary nights when he waked so often, and from the dripping eaves and gurgling corbels presaged rotten shocks or flattened fields: and now that all these anxieties and toils are ended, and now that the Most High has given these results to his labour, he that went forth weeping bearing precious seed, comes again rejoicing bringing his sheaves with him.

And the analogy goes up, and upward still, from that rejoicing peasant to the Christian parent who reaps his prayer and efforts in the salvation of his child:—up to the Christian patriot who, after all the ebbs and flows of popular favour, is rewarded with the extinction of an evil, or the reformation of a realm:—up to the missionary who after a ten-years' sowing, sees coming in the first-fruits of Greenland or Tahiti unto Christ:—up to the martyr who from beneath the Heavenly Altar looks down,—Cranmer on his England, Huss and Jerome on their Prague, Wishart on his Scotland, and from his ashes sees a mighty Church upsprung and flourishing:—upward and upward yet to that King of Martyrs and Prince of Missionaries who from His thirty years of husbandry among the hills of Galilee, when His head was filled with dew, and His locks with the drops of the night,—who, from the handful of corn which He then planted in the earth, and at last watered with His blood, already sees fruit that shakes like Lebanon, and who, when at length the harvest of the earth is ripe and Heaven's garner has received the last of His redeemed, shall see the travail of His soul and be satisfied.

But there are solemn words in Autumn's sermon. He says, "Be not deceived: God is not mocked: for whatsoever a man soweth, that shall he also reap. For he that soweth to his flesh shall of the flesh reap corruption; but he that soweth to the Spirit, shall of the Spirit reap life everlasting."

We see the earnest even now. He that sows to the flesh,

—he who spends his property or his talents in self-indulgence, in idolatrous vanities, in that cruel luxury which is deaf to the cry of misery, in gratifying the coarser appetites and passions of this fallen nature,—of the flesh he reaps corruption. His harvest is a heart constantly contracting. His harvest is often a shortened life or a shattered intellect:—a body prematurely blighted and a mind that loses susceptibilities and powers which once lost can never come again. His harvest is more and more of that corruption which he sows,—sin added to sin,—the habit of evil strengthened,—a growing remoteness from virtue and happiness, because a growing proneness to evil and a growing powerlessness against temptation.

And he that soweth to the Spirit, even before he reaps “life everlasting,”—see how rich is his intermediate recompense! From that dependent spirit of his and from those devotional habits, see how large is his harvest of peace and serenity! Amidst tumult and agitation see how fixed is his heart, trusting in the Lord; and amidst the flaming shower of each day’s temptations, burning into the souls of many, and leaving dark scars on the conscience, see how on his panoply of faith the sparks die out unperceived and harmless! From that God-fearing spirit of his, see how large is the harvest of social respect and personal security! what a fund of confidence and honour has accumulated from those early acts of self-denial, or from one deed of courageous honesty! what a fortune has been founded on a single commandment tenaciously remembered and constantly observed! And from that benevolent spirit of his, see how large is his harvest of love and gratitude! What a music is in his name, what a continual comfort in his presence! See how all hearts open towards his, as instinctively as they close on the approach of others; and see how he inherits the earth,—a meek but universal monarch carrying captive the whole

community, and reigning by love in souls which swords and sceptres fail to reach, and which even genius cannot conquer!

But this is only a faint foreshadowing of that final and exhaustless harvest which is to follow this earthly seed-time: for although salvation is all of grace, yet, compatibly with its entire gratuitousness, we know that in this life He who gives grace for grace is pleased to acknowledge the services of His believing people, for the sake of that Saviour in whose strength they are wrought, and to whose joy their recompense adds; and if in this life, why not also in the life to come? And in somewhat the same sense as reaping is the reward of sowing, we are taught that gracious habits, formed and cherished on earth, shall find their consummation in the still higher and holier products of eternity—whilst the self-denial implied in their culture will be infinitely over-balanced and requited in the joys of the life everlasting.

Think of this, you that are well-nigh weary of well-doing:—you that stand alone in a godless household, and who sometimes grow disheartened amidst the coldness, and the opposition, and the jeering:—you who have enlisted under Christ's banner, but who, if you have not actually forsaken house and lands for His sake, have at least felt constrained to let pass many a golden opportunity:—you who have been for years watching for a soul, if haply you might win it, and who still see it as far from the kingdom as ever:—you who have long been contending with a wicked temper or an unholy passion, and who dare not say that you have gained any sensible advantage over it—oh, be not weary! Think of the joy of harvest. Think of the day when you shall rest from your labours, and these works shall follow you. Think of the day,—the humbling, affecting, overwhelming day, when the cup of cold water will reappear as

an ingredient in the everlasting glory. Be not weary in well-doing, for in due season you shall reap if you faint not.

Yet be not deceived. God is not mocked. He that soweth to the flesh shall have his harvest also. Darnel grows as well as wheat, and thistles as well as barley. The awards of eternity are not the inflictions of arbitrary power, but they are the legitimate products, the prolongations, and out-workings of the present: a harvest corresponding to the seed-time: so righteous, so congruous under the government of a just God, so inevitable that the sinner feels, if he does not confess, that the sentence is just. Reader, be not deceived. Let not that day, that harvest-day of sorrow, come on you as a thief—that day when he who showed judgment without mercy shall receive judgment without mercy—that day when he who wrought abomination and made a lie shall find himself excluded from those pearly gates through which nothing enters that defileth—that day when he who used to say to God, “Depart from us, we desire not the knowledge of Thy ways,” shall hear God say to him, “Depart from me, ye workers of iniquity: I never knew you.”* Be not deceived. God is not mocked. This must be the way of it. Sin will result in sorrow: carnality will reap corruption. So entreat of God for the Redeemer’s sake to cancel that guilty past—to exterminate the crop of guilt and crime, so that it shall not seed itself in further evil, nor be treasured up as wrath against the day of wrath. Break off your sins by repentance, and from their fearful consequences take refuge in a Saviour’s intercession. And beg earnestly for God’s good Spirit that you too, taught, led, and quickened by the Spirit, may of the Spirit reap life everlasting.

J. H.

* See the Works of Andrew Fuller, vol. vii. p. 144.

HOMES OF OUR BRITISH FOREFATHERS.

DARTMOOR.

THERE is a district low down in the county of Devon which has not received from British archæologists the degree of attention which it well deserves. There are able works, such as Mr. Herbert's "Cyclops Christianus," in which it is not so much as named, and to the public in general it is almost a *terra incognita*. This tract of country is, however, more richly invested with aboriginal remains than, perhaps, any other part of the island, and abounds not only in the more ordinary forms of circles, cromlechs, &c., which are met with in other places, but also in relics of a character unknown elsewhere, and of singular interest and variety. This wild district, which is called Dartmoor, extends over a space of about twenty-two miles N. and S. and twenty E. and W., containing about 13,000 acres of ground. It is an elevated mass of land of an irregular form, broken into a number of minor hills, many of them crowned by groups of rocks provincially termed "*tors*." It is bounded on the west by Tavistock, and on the east by Ashburton; whilst on the north lies Okehampton, and on the south a beautiful line of country between Totness and Plymouth.

This district comprises the "ancient and royal Forest of Dartmoor," so it is designated in old books and writers. Within its boundaries is included scenery of the most varied and romantic character; and such as, it is said, is not resembled by that of any known part of the world, with the exception of a portion of Norway, where it is reported by travellers that landscape of a somewhat similar description is to be found.

On Dartmoor the hills rise steep after steep, their sides frequently abrupt and precipitous, and usually clothed with long grass interspersed with heath, except here and there where the presence of a bog is indicated by the rich reddish hue which is produced by the growth of the soft sphagnums and other mosses and bog-plants with which they are coated. Over these hills are irregularly strewn masses of granite and moorstone, some of them more than fifty tons in weight. The granite rocks which crown the hills are stupendous in size, of the wildest and most picturesque forms, and often capped with snow when all the country below boasts the verdure and colouring of spring. The geological formations of the district are very peculiar, and the stratification remarkable, the fissures being sometimes horizontal and sometimes a little inclined, the dip having a tendency towards the east and south.

The crowning rocks, or *tors*, each of which has its own peculiar and frequently characteristic name, may be seen from a great distance, and are beautiful and remarkable objects.

The name *tor* is found in both dialects of the ancient British tongue. The Cornish is *tor*; the Welsh, *twr*; Gaelic, *tor*; all meaning a tower, or high heap, or pile. The German, Dutch, Danish, and Swedish, have correspondent terms, so that the Teutonic as well as the Celtic dialects acknowledge the word. The beauty of Dartmoor is of a lofty and elevating character. He who,—after traversing these richly-wooded glades and verdant meadows, the glowing cornfields, and orchards ruddy with their abundant fruit, which adorn the lower grounds throughout South Devon,—finds himself at length placed on the craggy heights of one of the wonderful granitic tors which cap the hills on Dartmoor, cannot fail to be struck with the grandeur of the scene, and with its contrast to the country

through which he has recently passed. Looking around him he beholds numerous wild mountain-streams, rushing between the rocky heights that rise on either hand, and pouring their yellow waters tumultuously over channels wherein lie huge blocks of granite or moorstone, wrenched by former tempests from the mountain's side and hurled into the floods below. He marks hills rising fold beyond fold, forming deep gorges as they intersect each other, and containing within themselves solitudes as deep and still as those of some desert land; and he contemplates the floating mists which are ever wafting about among those deep green hills, now rising to reveal scenes of grandeur and beauty before hidden, now closing in grave solemnity over every object on which his eye and his mind have been delightedly dwelling, and he feels almost overwhelmed by the dignity and grandeur of the scene. But let him then descend and follow for a few miles the windings of one of those rapid streams, as it runs its course through glowing woods of birch and beech, of oak and ash, sparkling as its dark-hued waters bound over the granite rocks which obstruct their course; its current peopled by thousands of speckled trout, its woods with flocks of wild pigeons and other birds of beautiful plumage and varied note, its banks enamelled with myriads of glowing flowers of rarest hues and forms, all instinct with insect life, and he will allow that although its general aspect is that of magnificence, it is also a land of bright and cheering beauty.

From the admirer of nature Dartmoor has then high claims for consideration, yet it has higher on the antiquary. To him it opens a widely-extended field of observation, on which he may find objects of sufficient interest amply to repay the labours of research, for throughout its limits are to be found monumental, sacred, and social relics of our Anglo-British forefathers in greater variety and number, as well as in finer preservation, than in any other part of Eng-

land. The ground, too, is almost unbroken, and much of discovery, no doubt, awaits the enterprising traveller, who can be content to "*rough it*" among those wilds, and give due time and labour to the needful investigation. Rock-pillars, bridges of Cyclopean build, stone avenues, sacred circles, altar and stone basins, cromlechs and kist-vaens, abound; and with them are interspersed abundant relics of the huts, and some even of what appear to have been aboriginal villages of our Druidical forefathers, who dwelt among these forest recesses long since, before a Divine Redeemer had visited earth in human flesh, or the light of the Gospel had dispelled that thick darkness of paganism which then covered the world with its unholy shadow.

There is a feeling of intense interest connected with finding oneself standing among the rustic dwellings of those who were alive and earnest in the pursuits of life possibly at the time when Elisha the prophet wrought wonders on Mount Carmel, or who must at all events have lived not later than the times of Ezra and Nehemiah, for these simple remains are supposed to be from 2000 to 3000 years old. The mind loses itself as we look round and repeople the land with its ancient inhabitants, picturing them to ourselves as they then existed; "men subject to like passions with ourselves," the hopes and fears, the joys and sorrows, which move us, working in their hearts as in our own, but without those consolations which we as Christians enjoy,—with bloody and destructive rites, in which their sons and their daughters were torn from them and sacrificed to devils, in the place of the sacred and mild rule of Christ's ordinances, their hearths polluted by the unbridled lusts and habits of men "uncircumcised in heart," and the now peaceful fields, scenes of bloody and cruel warfare.

Before we enter on an investigation of the relics of our pagan forefathers which present themselves to us among the

wilds of West Devon, we will inquire who those ancients of renown were, and by what nations their solitudes were first invaded.

Some authors say that far, very far back in the roll of time, some mariners set sail from the land of Phœnicia (the Tyre and Sidon of Scripture) with intention to seek out the Western Seas. After traversing the coast of Africa, and building cities on different parts of it, they eventually reached Spain, and from thence, still extending their researches, stumbled on certain islands which they named Cassiterides. These islands must evidently have been those which we call the Scilly Islands, and the south-western coast of the mainland of England, now called Cornwall and Devon, of which the ancient name is Danmonia. The fact that the Phœnicians were the earliest traders in tin (which is allowed by all), gives strength to the supposition that they were the first foreigners who visited our land, as those districts which they were said to have visited abound most richly in that mineral. Strabo states, that "the Phœnicians alone traded to Britain from Gades, and concealed from others that navigation; but when a Roman vessel followed a certain master of a ship, that they themselves might learn this traffic of merchandise, he, on a spiteful envy, ran his ship on purpose upon the sands, and after he had brought them that followed after him into some danger of destruction, himself escaped the shipwreck, and out of the common treasury received the worth of the commodities and wares that he had lost." This jealous guarding of their secret shows that they alone were aware of the mineral treasures of our before undiscovered land.

Strabo thus describes one of our British forefathers: "They (the Cassiterides) are inhabited by men wearing black garments, clad in wide coats, descending to their ancles, going with staves like the Furies in tragedies. Mines they

have of tin and lead, which they exchange for earthen pots, salt, and brazen ware." He also says, "They are of a gentle and kind disposition, fair and honest behaviour, simple and sincere in their conversation ;" a character which is also given them by other authors.

We may then fancy such men as are above described traversing the singular and beautiful country that we have endeavoured to depict, and among which lay their homes, their temples, and their fortresses, stupendous works, the raising of which displays a degree of knowledge and of power, such as seems to warrant our adopting those accounts which report most highly of the civilisation of their architects, as the nearest to the truth.

It is very remarkable that so little should have been said of the *homes* of the ancient Britons. No writer, until Sir Richard Hoare entered on his researches, seems to have noticed the hundreds of ruined dwellings which exist in our land, and which furnished our British ancestors with homes for which they fought, and for which they died,—homes wherein dwelt those dark-robed men of whom we have spoken, amidst their wives and their children ; and wherein their affections, their joys and their sorrows, were all centred. To walk amidst the relics of these homes on the wild hill-sides, to trace the little moorland rills by which the feet of the women and children of days so long passed away have wandered, and from which they dipped the clear waters which still flow onwards even as they did 2000 years ago ; to watch the rack floating over those remarkable relics of antiquity which have endured for so many ages, and hear the tones of murmuring rivers which sounded in the ears of men of whom no vestige now remains, save these stones which once encircled their homes and hearths, fills the heart with many deep thoughts and solemn feelings.

The "hut-circles," as they are called, to distinguish

them from the sacred circles or temples, are all of a circular form, and consist in general of a single course of stones, although occasionally a double circle is to be found. These stones stand from a foot and a half to near three feet above the ground, and are placed close together. The diameter of the huts ranges from twelve feet to thirty feet, the most usual size, according to Rowe, being about twenty-six feet. The door is very frequently towards the south, and is marked by stone door jambs, usually placed at right angles with the outside of the circle. One example alone has been found in which the hut has been discovered in a comparatively perfect state, the upper part only having fallen in. "It appears," says Mr. Rowe in his "*Perambulation of Dartmoor*," "to have been shaped like a bee-hive, the wall being formed of large stones which seem to have been chosen with care for the purpose of forming the widely arched roof; and which evidently had their interstices filled up with smaller stones, and probably turf." Cæsar speaks of the houses of the Britons as similar to those of the Gauls, and lighted only from the door with a domed roof, having an aperture at the top for the escape of smoke. He describes them as chiefly composed of wood, but though in parts of the island they would probably be so, in districts abounding in stone as the whole of that which composed the ancient *Danmonia*, it is most probable that that material would supersede every other, as it does in the present day, the walls, houses, and other fabrics throughout Devonshire, and in some parts even the fences of the fields being almost invariably formed of stone. In every part of this remarkable district these relics of primeval British dwellings abound; they are usually more numerous along the declivities of hill-sides which slope down towards water-courses, and especially of those facing the south and west, and the clusters which indicate the site of towns and villages are invariably so placed. Some remarkably fine

specimens of hut-circles are to be found above Spitchwick-house on the eastern side of the moor. We extract the account of them from Rowe :—"Sharpitor or Sharptor rises grandly above the river (the Dart), and will well repay a visit to its craggy summit, but our attention here will be chiefly directed to a group of aboriginal relics, which will be noticed near a moorland farm called Rowbrook. On the right of the road, on the western slope of the hill, is a remarkably perfect hut-circle, twenty-four feet in diameter with a door-jamb erect three feet high. From this circle a track-line or boundary bank is carried down the hill, and connects the hut with the foundation of a rectangular inclosure, forty-two feet by eleven, formed of the same materials, and in the same manner as the hut-circle ; but whilst the circular form is found in every part of the moor the rectangular is of exceedingly rare occurrence. Below the road and nearer the river, just above the Eastcomb Cottage, is a very fine circular foundation, of large dimensions, and of a very interesting description, being at least thirty-eight feet in diameter, and having walls six feet in thickness. The door-jamb is of unusual size, five feet high, and six wide ; and the whole ruin is in much finer preservation than any of the smaller hut-circles."

In several parts of the moor we find these hut-circles gathered together as if they had formed towns or villages. They are sometimes enclosed and bounded by a large outer circle or wall of circumvallation and placed there as in a stronghold ; in other instances they are merely grouped together without any appearance of fortifications. Of the latter class is one near Merivale Bridge, which crosses the river Walkham, about five miles from Tavistock. The Moreton road runs directly through the village intersecting two of the circles. The hut-circles are here very numerous, in all about forty ; some lying on one side the road, and some on the other. These circles vary in size from eight paces to

sixty, but within these larger ones smaller ones are included. Most of these are circular, though some are oval.

It has been suggested that these larger circles have formed parts of a temple, but there seems little doubt that the cluster of circles composed altogether an aboriginal town or village.

The other class of circles of which we have spoken, those with an outer wall of circumvallation, are very frequent on the moor. It is supposed that they were constructed for the preservation of cattle, but it is probable that they were designed for the protection of men as well; and it is most likely that they were the fortified towns, or castles of strength, of the ancient inhabitants, serving both as permanent residences for them, and as places of refuge whereto they might resort in times of danger. These circumvallations are called by the moor-men "*Pounds*:" Grimspound is by far the finest and most remarkable of them. It is situated on the north-west slope of Hamildon, on the north of the moor. Rowe thus describes it:—"The wall or mound is formed of moorstone blocks rudely piled up, but so large as not to be easily displaced. The base of this rampart covers in some parts a surface of twenty feet in breadth, but the average height of a section taken at any one point would not exceed six feet. With the exception of an opening on the east and west sides, the enclosure is perfect, surrounding an area of about four acres. The original entrance is supposed to have been on the south. The vestiges of ancient habitations within this primitive entrenchment, are numerous and occupy the whole area, leaving only one vacant spot at the upper end, which might have been a kind of forum or place of public concourse for the inhabitants. A spring, rising on the eastern side, and skilfully conducted for some distance below the wall, supplied the inhabitants with

pure water ; and the whole presents a more complete specimen of an ancient British settlement, provided with means of protracted defence, than will perhaps be found in any other part of the island." These villages are enclosed by low walls of stone rudely piled together, sometimes in a circular, and at others in an elliptical form. Roundy Pound is another very fine specimen of an enclosed village.

Such are the relics of the homes of the Britons during their lives ; of the places where their bodies have been deposited after death we shall say but little, because although relics of this character abound on Dartmoor, so much has been said by various authors on the cairns and kist-vaens of this and other countries, that it will be needless, as we are not aware that there is anything peculiarly distinctive in the character of those on Dartmoor. The kist-vaens are not found on the summit of a cairn as in Cornwall, but they are sometimes imbedded in the cairns, and one of this kind exists on the highest part of Cosdon Hill, on the northern part of the moor ; they are sometimes included within the circular inclosures, but more usually stand by themselves and unconnected with any other relic. These stone chests are usually of four stones, and frequently in the centre is found a circular excavation, which it is probable contained a cinerary urn, as both urns and bones have been found within these primitive depositories. The cairns or burrows are most abundantly scattered over every locality and differ in no material point from those of other districts.

M. D. P.

(To be continued.)

THE MEDITERRANEAN IN THE SIXTH CENTURY B.C.*

It is remarkable how the civilised nations of antiquity clustered round the lovely shores of the Mediterranean Sea. Let us take, as it were, a bird's-eye view of that interesting region as it appeared in the sixth century before the Christian era. We turn first to its eastern extremity, where the waves broke around the foot of Carmel, and the sun rose behind the purple heights of Lebanon; but here a scene of desolation and disaster presents itself, for the seventy years of captivity are running their mournful course,—the Holy City has met its first judicial overthrow (586), and its population are hanging their harps upon the willows beside the Euphrates and the Chebar. They had looked in vain for help from Egypt, which had already long past the culminating point in its own history, and approached the period of the Persian conquest (525); yet, as we gaze upon the glorious Nile pouring the fulness of its mighty waters between those fertile and highly cultivated banks which extend on either side, we see that the cities of Thebes, Memphis, and Heliopolis, are standing in their pristine magnificence,—that there are villas, and vineyards, and flower-gardens in abundance,—that there is a thick and busy population, with much display of luxury and wealth,—in a word, Egypt is

* The plan of studying universal history in eras has many advantages; those who are desirous of vivifying and retaining their acquisitions, will find it an exercise at once amusing and instructive to select any period, and bring into one panorama its chief events and most illustrious personages. The above specimen we received from a young friend, the only surviving daughter of an eminent minister of the Gospel, in whose manifold acquirements and rarer excellence many rejoiced for a season, and whose early translation to those bright regions which were her truest home, invests with an interest almost sacred a contribution which cannot be continued.

still the kingdom of the Pharaohs, and not yet that of the Ptolemies. A glance at Tyre will convince us that upon her the judgment has already fallen (Ezek. xxvi. 3) which is threatening Egypt. (Ezek. xxxii. 11, 12.) Her sea-girt citadel bears the marks of a recent and destructive siege (570); the hum of her busy fairs and markets has ceased, and richly-laden vessels no longer throng her port. If, therefore, we wish to see the merchant fleets of the period, we must seek them farther west, between Etruria and Carthage, or between Carthage and the Pillars of Hercules. How strange to imagine those quaint galleys, with their high beaks and antique rigging, traversing the soft moonlight which shone then as now on the bright restless waters! How strange to think of the heavy measured splash of their numerous oars, and to see that the helmsmen look up to the starry heavens for guidance! They are on their way, perhaps, to Spain for gold, or even to Britain for tin. Carthage, from whence they come, is now the proud metropolis of a great nation, and seems in opulence and power to have far surpassed Rome. Indeed, the future mistress of the world gives no sign at present of her coming splendour: the three last of her legendary kings have been reigning throughout the century, and at its close she suffers greatly from the political convulsion which subverted the regal power (509). The neighbouring nations take advantage of the weakness of her unsettled government, so that her territory is lost and her people grievously pillaged. It was not till about twenty years afterwards that Spurius Cassius accomplished those three works to which Dr. Arnold thinks that "Rome owes all her future greatness," viz., the conclusion of the two leagues with the Latins and Hermians, and the passing of the first Agrarian law. Turning away from Etruria—over which, highly civilised as it must have been, a veil of mystery appears to rest—and passing down

the Italian Peninsula, we cross the Straits of Messina, close by Scylla and Charybdis, and pause again at the beautiful Island of Sicily. Part of this belongs to Carthage, but the point of greatest interest is the independent city of Syracuse, whose buildings and fortifications clustering down to the sea's brink, one might fancy to be reflected in the still blue water of the noble bay which forms its harbour. Had we been a few years later, we might have remarked the invasion of the Syracusan territory by a Carthaginian army under Hamilcar, and seen his defeat by Gelon, and the burning of his fleet (478); but, as it is, we pass on to take our last view, which will be that of Greece. Here Athens and Sparta have already assumed their position as the leading powers of the country; but the former has not yet reached the golden age of Pericles. The Acropolis is not crowned by the Propylæa, the Parthenon, and the Erechtheum—the Peiræus is not fortified, nor do we see the white columns of the marble Temple of Theseus glistening on yonder isolated hill. Pisistratus, a relation of Solon, has attained the sovereignty of the city, and bequeathed it to his two sons (527). Their subsequent overthrow induces their adherents to seek foreign support for their fallen cause, and thus the way is prepared for the Persian Invasion, with which great event the next century opens.

It would be most interesting to investigate the evidence of God's providential administration, which is so clear and indubitable in the period which we have been contemplating, to trace the mutations and developments of the three last of the great kingdoms of Daniel, and to note the execution of those judgments which formed the "burden" of the prophecies of Ezekiel, Jeremiah, and Obadiah. This would, however, be advancing into what Dr. Arnold beautifully characterises as "that higher region, whither indeed history ought for ever to point the way, but within which she is not per-

mitted herself to enter." Happy are they who heed the indication of her finger, and learn from their historical studies to acknowledge with stronger faith, deeper adoration, and holier joy, the all-pervading presence and universal government of

" One omnipresent mind,
Omnific, whose most holy name is LOVE !"

F. E. S.

REVIEW OF THE MONTH. -

ON the 8th of September, after operations of unprecedented extent on either side, Sebastopol fell into the hands of the Allies ; and in its destruction there has been removed a great obstacle to the improvement of the East, as well as an incubus on the freedom and welfare of Europe. The battle of the Alma, which opened the way to this fortress, was fought on the 20th of September last year ; and it is a striking illustration of the vanity of earthly ambition that during that brief interval the victorious generals of England and France, as well as the haughty aggressor himself, have already passed away from the scene of contest for ever.

Except for the purpose of giving completeness to our chronicle there is no need that we should record the ten brilliant days which our gracious Sovereign spent in France. But the visit has done good to both nations, and in the ensanguined annals of this year the hospitalities of Paris and St. Cloud will stand forth a bright and welcome oasis.

America has lost an illustrious citizen in the death of the Hon. Abbott Lawrence. In partnership with his benevolent brother Amos, and with the blessing of the Most High, he rose to great affluence ; and from the vigour of his understanding, the uprightness of his character, and his manly courtesy, he acquired great public influence. He

declined office in the cabinet of President Taylor, but consented to proceed to England as American Minister at the Court of St. James's; and, probably, there is no one American who has done more to diffuse and deepen a good feeling between the inhabitants of either country than Mr. Lawrence in the discharge of his embassy. He was a large-minded, large-hearted man; and in the lamentation for his loss Britain sympathises with America. Mr. Lawrence died at Boston on the 18th of August.

The Rev. Dr. Gilly, Canon of Durham and Vicar of Norham, died on the 10th of August. With his more elaborate work, "*Vigilantius and his Times*," we confess ourselves unacquainted; but who has not read his *Biography of Felix Neff*? Unless it be General Beckwith, no man in the present day has done so much for the Vaudois churches of Piedmont; and the College of La Tour will be ever identified with the name of its enlightened and generous benefactor.

We have received the second edition of Drs. Ronalds and Richardson's "*Chemical Technology*," Vol. I., containing "*Fuel and its Applications*." A work of astonishing research, it is at the same time popularly written, and the profuse illustrations bring the most difficult subjects within the comprehension of any attentive reader who has already mastered the elements of chemical science.

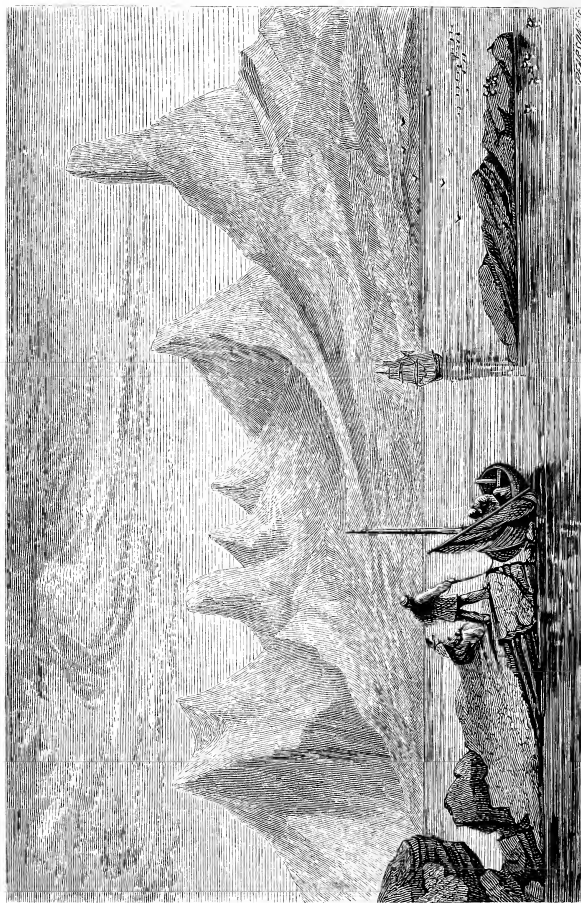
Our friend Mr. Gosse, who has nearly made the whole of the watery world his own, has published "*A Manual of Marine Zoology for the British Isles*." To those in whom his charming "*Aquarium*" has wakened a zeal for such researches, this little hand-book will be a welcome companion. With its assistance no rummager among the rocks of Bognor or Ilfracombe need have any difficulty in identifying the most anomalous nondescript, and to those who wish to know something about the inmates of their vivariums, the book is indispensable.

Mr. Leone Levi has published a short treatise on "The Law of Nature and Nations as affected by Divine Law." Although not prepared to adopt in their full extent the peace principles which it developes, we accept it with respect as an able and philosophical investigation of the subject, and we may congratulate the "friends of peace" on such distinguished advocacy. There is much which calls for thought in the following sentences of the preface:—"On examination of the causes of crime, we find hatred to be the most prolific. What has been done to avert or neutralise its influence? Has Philosophy, has Religion, or has Education, been directed to the dissemination of the principles and illustrations of Love? We have trusted to the Sacred Scriptures to effect such an influence. But the Bible has been more prominently used as a body of theology than as a popular educator and a reformer of morals and of sentiment. A deficiency has thence arisen. *The literature of the affections has yet to appear.*"

The "New York Crusader" has published some interesting statistics of the present number of Jesuits, taken from the "Jesuits' Almanac." It appears that the whole number is 5510, of whom 1515, with their General, reside in Italy, 1697 in France, 463 in Belgium, 364 in Spain, only 177 in Austria, whilst 1294 are scattered over England and America. In the year 1717 the number of Jesuits was 19,876, or nearly four times their present amount.

A new door for missionary enterprise appears to be opened in the Japanese empire. Dr. Bettelheim, a missionary of Jewish descent, has resided for the last nine years in the island of Loo-Choo. At first jealousy guarded and debarred him from intercourse with the natives, chiefly by means of his medical skill he at last succeeded in ingratiating himself with the authorities, and obtained a certain amount of freedom. There is now a congregation of from forty to fifty individuals, and four have received Christian baptism.





Mountains at the foot of the Pfolden Fjord

GWENNIE.

A WINTER'S TALE.

CHAPTER I.

ON a fine frosty afternoon, late in December, Martha and Gwen Davis left their father's cottage in Aber, a little village connected with a considerable colliery in the midst of the Welsh Mountains.

Martha was seventeen years of age, tall, dark, and uncommonly handsome,—a wild, thoughtless, impulsive, open-hearted mountain girl. Gwen was sixteen or thereabouts, very small and delicate,—a little fairy in that rugged place. She was an amiable, thoughtful girl; always busy in doing acts of unpretending kindness. Martha was universally admired in the village, and Gwen was universally loved.

They started together, but on different errands. Martha was going to meet her father, one of the miners. Gwen was going to see Mrs. Lloyd, an old bedridden aunt, who lived some three miles off.

Their roads separated at the bridge over the little stream which ran through their valley. When, however, they reached it, Martha, who had been somewhat silent hitherto, said that she had something to speak to Gwen about, and continued to walk on with her till they had climbed some distance up a steep bleak mountain which Gwen had to cross. On the other side of it, and far down the valley, was a shaft which had been long unused. It was called the Cwm Maen pit. It had been sunk by a company which had failed in endeavouring to work a mine there.

As they climbed, Martha began to talk more fluently.

But she spoke on any subject rather than the one which she had nearest to her heart, and which she also knew her sister knew she wished to speak about.

"Is it true, sis, that Peter Jones is dying?" she said.

"Yes, sure," said Gwen; "I sat a long while with him to-day. He seems very happy and quiet in his mind. Blessed are the dead who die in the Lord, Martha."

"Yes," she replied. Then, after a pause, "Gwennie dear!" she said.

"Well?"

"I wish *I* was better—that I could *be* better—that I was ready to die."

Gwen turned and put her arm round her and kissed her.

"Why, sis dear?" she said.

"I want to die! I wish I was dead!" she cried.

"Martha!"

"I tell you I do," she went on; "I am weary of this—this——" She stopped. She was approaching the subject uppermost in her thoughts, and she wanted to defer speaking on it still. Suddenly changing her tone, "Gwennie," she said, "if Peter Jones dies, father will get a rise, won't he? He says they're through into the Cwm Maen pit, and he's had a good hand in that."

"No, no," said Gwen; "I've often heard Mr. Francis ——"

"Mr. Francis, Gwen?" cried Martha, half-angrily, half-reproachfully.

"I've often heard him say," she pursued steadily, as if not noticing the interruption, "that if they got into that shaft, it would all be owing to the talent of the master. No one else, he said, could have mapped out such a road as he has, at such a depth. It goes right away under this mountain: and after working out coals, in all directions, for ten years or more, they have now opened straight into

yonder little shaft, as easily and surely as if they had seen it all the while, as I shall when I get over the top there."

"Then you don't think father 'll get a rise?" said Martha, very gloomily. "Sure he deserves it."

Gwen did not at once answer, and they went on climbing painfully up the rough track. At last she seemed to have made up her mind. She stood still, and put down the basket which she had been carrying, and which was laden with little comforts for her sick aunt.

"Martha dear," she said, sweetly, "you'll be late if you don't mind, and had better not come farther with me. You've a good bit to go back, and you wouldn't like to miss father. What do you want to say to me?"

"Did mother tell you what passed last night while you were away at widow Evans's?"

"She told me that Mr. Francis had been in, and that father had positively refused him."

"But didn't she tell you why?"

"No."

"Oh, Gwennie! Gwennie!" exclaimed Martha, stamping passionately on the ground. "He loves me, and I —— I ——"

"Hush, Martha! What was the reason?"

"Why, father won't believe, to begin with, that he loves me. It's only a boy's fancy, he says. He is a gentleman's son and I am only a miner's daughter. Sure, if he could overlook that, we might. Besides, father would have been a gentleman, too, if his father had not been unfortunate and died just as he was born."

"Don't be angry about it, sister," said Gwen fondly. "You know if he,"—she did not say Mr. Francis now—"married you, he'd take you away from here when he is out of his articles to Mr. Lyon, and you'd have to live among people whose ways would be quite different to ours, and ——"

"I'm not so old or so foolish but I can change," cried Martha; "and, besides, he tells me I should not see many people. His father's works are far from all towns; and, above all, he is good and he *loves* me. Don't you think father 'll get a rise? Oh! if he did, it might make a difference, and we might be happy, after all."

"Dear Martha, don't set your heart too much on it," said Gwen; "I think happiness comes more from what we ourselves are, and what we do, than from anything that others are or do to us."

"You've never been in love," was Martha's impatient commentary.

"No," said Gwen, musing; "but I don't think that alters the truth of what I say." She paused for a moment; then, as Martha made a hasty gesture, "Does his father know he wants to marry you?" she said.

"Yes. He told him all, and he wrote that he would not interfere. *He* married where he loved ——"

"Below his own rank?"

"He married where he loved, I tell you; and he said James should do just as he liked too. That only makes it harder for me to bear. If his father doesn't object, why should mine? I say it's nothing but pride."

"And his mother?"

"She's dead."

"Has he any sisters?"

"What do you ask these questions for, and in that dry tone?"

"Has he?"

"No."

"It certainly makes some difference that there are no sisters," said Gwen, as if in answer to her own thoughts.

"What?—what's that?" cried Martha, who seemed to get more and more impatient, as she saw, or fancied she saw from Gwen's ways that she was not of her opinion.

Gwen repeated.

"Why does it make a difference?—Sure, if he loved me they would. We love Esther Evans whom our Thomas is going to marry; don't we?"

"We're different to ladies and gentlemen, high as father and mother have brought us up," answered Gwen. "We're not proud about these things."

"I tell you it's all pride in father ——"

"Hush! You mustn't speak that way of him," interrupted her sister. "Ladies and gentlemen, I say, are so proud in these affairs, and little differences look so large in their eyes, and they can *hurt* so with their flouts and sneers."

"Why do you talk this way, Gwen? Are you against me, too?" cried Martha, her eyes sparkling with angry tears. Gwen did not at once answer. She knew James Francis to be a worthy, indeed an excellent young man, and that everything was in favour of his marrying Martha, except her birth. But her father was against it, and he must know better than she could. It certainly would be a good thing for Martha to be united to one of such high principle, and, above all, of such quiet resolution as he was; he would check her impetuosity and encourage her talents. But——

Martha interpreted her silence against herself.

"Then you think father right?" she exclaimed, passionately, "and I'm wrong. Oh, Gwennie, I fancied I was sure of you, at least,—that you loved me——"

"I do—I do!" said Gwen. Her sister hurried on.

"That you would sympathise with me in my trouble, and advise me, and—and——" her voice was thick with emotion. "But I don't care. Join against me. I'll love him still, for I know I'm not wrong; and if anything goes amiss, remember you've brought it on yourselves."

And before Gwen could speak, she turned and hurried away.

Gwen called after her, but to no purpose. She would not turn, but sprang down the steep mountain track as quickly as she could.

Gwen could not follow her. She had to get back from her visit to Mrs. Lloyd before dark. She was, I said, a good girl, and her little heart was sorely troubled for her sister, as she raised her basket and resumed her way across the lonely mountain. She knew how impetuous and hasty Martha was, and gladly forgave her the harsh words she had said of her; she knew she would be soon sorry for having spoken them, and she determined, when they met again, to try and comfort her in her disappointment more than she had done just now.

At the bottom of the hill Martha saw Mr. Francis standing on the bridge. She, too, was in the main a good girl. All her anger against poor Gwen had by this time evaporated, and she would fain have gone after her to tell her so, if she had not feared to be too late to meet her father.

She walked quickly across the bridge. James Francis extended his hand to her with a glad smile, and would have detained her; but she would not stay with him. She could not, of course, help it that her eyes still flashed a little, and that she conveyed more to the young gentleman by her looks than her words; but she only gave him a friendly greeting and passed on.

"Martha! don't hurry away so," he called after her, persuasively.

"I'm late in meeting father. Don't ask me to stop, James," she said, and walked on. Ere long she met her father.

As has been said, he came of a good family. His father was at one time a merchant of good repute in Bristol, but his affairs somehow went wrong, and he died a bankrupt just after the boy's birth. His only relation—his father's

brother, a West India merchant,—having held aloof from Mr. Davis in his troubles, the widow would not apply to him for help. She herself was an orphan and almost friendless. Life was, therefore, a hard struggle for her, and it soon wore her down. She died when the lad was nine years old.

She had lived, the last few months of her life, in a room in a miner's cottage in North Wales. On her death the miner's wife took care of the little boy, and after a while her husband made him go with his own sons into the pit where he worked, and so he became a miner.

His mother (an accomplished woman) had taught him very carefully, so long as she was able to do so, and in regard to religion the miner's wife had anxiously followed her steps. Of course other education was not much looked after, but much of what he had learned from his mother remained by him, and he was always fond of books, and read a good deal. After some years he married one of the miner's daughters,—a good girl; and, when a young family began to cluster round them, both did their best to train them.

In Wales religion has a powerful hold on the population, and you will often hear sentiments of deepest piety from the lips of the commonest man at the furnace-doors or in the headings. So that in this respect Davis found no hindrance from his fellow-workmen. His chief aim had always been to instil Christian principle into his children. Next to this, he taught them all he knew or could learn himself; and as he was a man of singular perseverance, he managed by dint of hard labour to master many things which men in his present station never know. Thus his children were really not very far behind what they would have been, if he had continued to occupy the same place in society as his fathers did.

As Martha walked home with him, he noticed that she

was unusually thoughtful and that her answers to his light-hearted chat were often vague, and not to the purpose. He naturally guessed that this was a result of last night's scene; and, instead of remarking on it, he tried by every means in his power to lead her thoughts to other things. And, after his homely tea, he proposed to her and his son Thomas a stroll in the fresh frosty afternoon, to which they gladly agreed.

Gwen might have been home by this time, but she had not then arrived.

CHAPTER II.

It grew very suddenly dark at about five, just as Davis and Thomas and Martha re-entered Aber, after a long ramble and scamper among the mountains.

They were tired and wet, having encountered a storm of sleet and snow as they neared home, and having had to walk against a strong wind, which seemed to increase with every moment.

Their first business was to get dry at the large fire which blazed on the hearth of their kitchen drawing-room. Their next, to find something to eat; and, be sure, in a Welsh meal cheese was not forgotten, nor that excruciating ale which may well be called by the name of *crwŵ*.

"Well," said Davis, as they paused in their operations, "and where's Gwennie?—gone to bed, I suppose, tired and wet?"

"Gone to bed?" exclaimed his wife: "She has not come home yet."

"Not home? Poor girl! it will be a bad walk for her. It looked very like a heavy fall of snow; didn't it, Thomas? Why, she's late. Aunt Maria was worse, I suppose, and she

stayed longer with her than she intended. Dear Gwennie ! God bless that child ! She's always doing some kind act to somebody."

" Oh, Thomas dear," suddenly exclaimed his wife, after they had sat a little while longer, " I quite forgot ! How stupid of me ! A man was here just after you went out your walk with the children asking for you."

" A man ? Who was he ?"

" I don't know. He only asked if you were Thomas Davis, the son of Alfred Davis of Bristol."

" What ?" cried Davis, starting up.

" Nothing else. I said yes, on which he seemed greatly pleased. He said he would return either to-night or in the morning, and went away."

" Where did he go to ? Where is he stopping ? At the Commercial Inn, I suppose. I'll go and see." And he went to the door and opened it. The snow had now begun to fall very heavily, and the ground and houses were gradually being enfolded in its white embrace.

" Not in such a night. Do not go out, Thomas dear. He said nothing more. He was on horseback, and they have no stables at the Commercial, so he would have to ride on to Oldport."

" A terrible night for a ride," said Davis.

" Ay, and for a walk too. I wish Gwennie was in," said his wife, looking out with him on the dark night. The bright fire-light streamed through the open door, and they saw the snow thickly and silently falling.

" When did you expect her home ?"

" She said before dark, but I hardly thought she could be back so soon. This is, however, very late. See how the snow is drifting before the wind ; the flakes seem racing with each other as they are blown past through the light. It will be terrible on the Maen mountain."

"Don't frighten yourself, mother," exclaimed young Thomas; "she knows the mountain-paths well, and doesn't mind a bit of storm."

"Wouldn't she sleep at Aunt Maria's if it came on to snow before she left?" said one of the children.

"No, no. She knows how anxious we should be. She would never do that," said her mother. "Dear Gwennie always thinks of others more than herself."

"She told me she hoped to be back before dark," said Martha, "when we parted. Come in from the door, father. You'll take cold."

"Yes ; come in," said young Thomas. "She'll be here presently,—before you can read ten pages of the Christmas Carol."

"Oh, the Christmas Carol!" "Come, father, and finish about Scrooge!" "We want to know what becomes of Tiny Tim!" cried a number of voices. Davis had begun the preceding night to read Dickens's exquisite story aloud, and had not then been able to finish it.

The fire was blazing brightly, and, before he had given his answer, the chairs and stools were ranged around it. But he did not respond to the wishes of his young ones. His wife's face was very serious, and he spoke apart with her in a whisper. At length,—

"Thomas," he said to his son, a fine lad of nineteen, "I don't like Gwennie's being so late. Just run round to widow Evans's, and ask Robert to come with us. We'll go over the Maen toward Aunt Maria's so as to meet Gwen."

"Let me go to widow Evans's," exclaimed Martha. "Thomas will be so long telling the story if Esther's there."

They laughed and consented. She threw a heavy plaid round her head and shoulders and ran out into the snow. She was gone some few minutes. When she returned she

was quite out of breath. Thomas asked her how it was, if she had gone so quickly, she had been so long away. She made him an eager gesture to be silent as she shook the snow from her plaid, and he understood where she had been when, a few minutes after they had started, they met Mr. Francis. He asked if he might join them, to which they, of course, at once agreed. He seemed as anxious about Gwen as any of them could be.

They had a lantern with them, as it was very dark, and, for a long while, they walked painfully along, struggling against the wind, half blinded by the snow as it was dashed in their faces. They reached the top of the Maen mountain, and pushed hurriedly on across the waste moorland which runs along all that ridge. They gained the down-path on the other side, and began to descend it, but no sight of Gwen. By turns they held up the lantern as high as they could that she might see the light if she had missed the track, which the snow was now fast obliterating; but the flakes fell so thickly that its rays did not reach very far. They shouted, but the wind blustered so loudly that they themselves could scarcely hear the sounds.

They reached the valley below, and still saw nothing of Gwen.

"Let's run, lads!" cried Davis. "We're not far from Aunt Maria's. Anything's better than this horrid suspense."

They did so, and ere long were standing at the little door and knocking. It was not opened for a few minutes, so Davis impatiently repeated his summons.

An old woman appeared.

"Where is she?" cried Davis.

"Hush! hush!" she said. "Come in."

They entered, and she closed the door behind them.

"Much worse. Dying, I fear. How good of you to come over this black night!" she went on.

“Who? Who are you talking about?” exclaimed Davis. The old woman looked frightened at his vehemence.

“Maria Lloyd.”

“Where’s my Gwennie?”

“Oh, gone home long ago.”

“When? Tell me about her! When did she go?”

“Why, she stayed rather late, reading and praying with Maria,” she replied. “She would have stayed all night, only she had no one to send to let you know. God bless her!—But she left before dark.”

Mr. Davis did not speak for a moment. Anxiety was changing fast into terror.

“She—she has not got home!” he exclaimed. “How was she to go?”

“She said, by the mountain.”

“My poor child!” he groaned.

“I told her she had better not try that way, as it looked stormy, so, perhaps, she’s gone round by the road. Don’t be afraid, Mr. Davis, sir. She is such a good girl, and the Lord is mindful of His own!”

“My Gwennie! my own pet!” cried the poor man, with tears in his eyes.

“Come, Mr. Davis,” said Mr. Francis. “This is unlike you! Rouse yourself. You think she went by the road, do you?” he said to the old woman. “The sooner we follow then, the better. Away!”

And in a few minutes they were all hurrying at their best speed along the main road.

This was a great distance round;—more than six miles, if they pursued it all the way. There was, however, a village about half way, where, if Gwen had passed through it, she would have surely stopped, at any rate for a few moments, as another aunt lived there. If she had not been

there, there was a short cut from it across a smaller mountain than the Maen.

Davis's excitement was intense as they entered Mrs. Nance's house. They found her busy knitting, her two children playing beside her.

Gwen had not been there !

Up to the present time James Francis had kept down his anxiety better than the others had been able to do. His cheery, comforting words had more than once restored poor Davis to something like equanimity. Now, however, he was seriously alarmed ; he did not doubt but that Gwen had lost her way on the wild Maen mountain.

"Do you return home with Thomas and Robert," he said to Davis. "I'll get some fellows here to go with me back and over the Maen. If she hasn't arrived, you do the same at Aber, and come and meet us. We must be quick. Don't lose heart, at all events. God is with her wherever she is."

Davis wrung his hand. As they were parting, Mr. Francis called back Thomas.

"You know all about it—about Martha and me," he said. "Tell her I'll do what I can, and don't let your father think too much about it. Keep talking to him, and lose no time."

And they separated.

It was a wild and terrible night. The wind rising in fury, the more freely it ranged over those vast solitudes, seemed to threaten to sweep them off their feet, as they desperately struggled through the snow across the lower Maen. When they reached Aber, Davis, his son, and young Evans, were well-nigh exhausted.

Gwennie was not there !

The mother's agony, when they said that they had no news of her loved girl, was terrible. Not more so, however, than that of poor Martha. The harsh words which she had

spoken to Gwen as she left her on the mountain rushed into remembrance. She might never see her sweet sister again ! She might never have another opportunity to say she was sorry, to ask her forgiveness ! Never ! never ! the thought was horrible. What could she *do* ?

Davis knew too well that if Gwen was wandering in the mountain, no time should be lost. So, notwithstanding his exhaustion, he forced himself out-of-doors again. He called on some of his fellow-miners ; Martha, wrapped in her still wet plaid, did the same, and so did Thomas and Evans. The news soon spread that Gwen Davis was missing, and in less than half-an-hour nearly all the men and lads of the village had turned out,—many of the girls with them,—and were hurrying up the steep track to the Maen.

They had plenty of lights, and some dogs with them. They spread shouting in every direction. The snow still fell, thick, and silent, and fast. The wind still raged, and it roared in their ears so that the deep barking of the excited dogs and their own vociferations were scarcely to be heard. It was a strange scene, and no one who assisted in it could ever forget its interest.

But the search was wholly unsuccessful. Not a trace of the poor girl was to be found. The whole of the moor which crowned the Maen, and the mountain-sides, had been explored, and yet not the slightest clue to the missing one could be got. Indeed the traces of the searchers themselves were filled up as they sought.

So it went on all night. Towards morning the wind died away, and the snow fell more slowly. It was by this time very deep, and, as it now began to freeze sharply, many of those who had begun and carried on the search with hearty good-will, were forced by sheer fatigue, and terror of falling asleep, to give up further struggling with the snow and icy wind, and to toil painfully home.

Dim, and cheerless, and piercingly cold, dawned the morning, and it found few on the mountain beside Martha and Francis, Thomas Davis and his son, and Esther Evans and Robert. These, too, were all wearied out, and, after some faint but frantic efforts to continue the search, they had perforce to turn homewards for the rest and refreshment which exhausted nature claimed.

They might have searched there all day, but they would not have found the lost maiden. She was lying on her back, helpless and sorely wounded, far down an excavation which opened into the Cwm Maen pit.

CHAPTER III.

After a few hours of troubled sleep Davis sprang up to renew his desperate search. He found numbers of his neighbours in the kitchen-parlour before mentioned (his only sitting-room); and if anything could have cheered the poor man, their kindly sympathy might have done so.

But nothing would comfort him but action, and, after a hurried breakfast, and brief but earnest prayers, he and his wife started to see Mr. Lyon, the proprietor of the colliery, and to ask his advice as to what should be done.

They found him about to come to them, having heard of their trouble, for he was one of the best of masters, and really cared for his people's happiness.

"Let every man that can be spared from the pits, and all the hauliers (horse-boys) be sent up the Maen after us, with pickaxes, shovels, and some poles," he said to his foreman. "At once, too, so that we may lose no time."

The foreman was delighted to obey. He hurried off, and ere long was clambering the mountain in company with a

great mass of miners, boys, and women. It was now nine o'clock, and many of those who had been out all night had become sufficiently rested to resume the search, and went too.

Mr. Francis, however, had so thoroughly worn himself out in his night labours that he slept later than he intended to have done. It was twelve o'clock when he entered Davis's cottage.

All were away up the mountain except the young children. He felt a sort of shame that Martha should have been able to recover from her fatigue better than he; he did not know the bitter anguish which agitated her heart and drove all sleep absolutely away.

He was about to leave the house and hasten after the party, when a horseman rode up to the door.

"Mr. Davis?" he asked.

"No," he answered; "Mr. Davis has gone up the Maen mountain."

The man seemed vexed.

"He's in great trouble. His daughter, we fear, is lost in the snow. I'm going after him," added Mr. Francis; "shall I say anything?"

He thought for a few moments. Then,—“Will you tell him,” he said, “that the person who called last night and asked if he was Alfred Davis's son, is waiting for him at the Commercial Inn?”

“Does he know what you want with him? and is it very urgent? If not, be sure he won't come,” said Mr. Francis. “He's nearly distracted at the loss of his daughter. Won't you go with me?”

“No, no; I can't go up mountains. I'm not going to risk losing myself or breaking my neck. Albert Smith's description of his ascent of Mont Blanc's enough for me,” exclaimed the man.

“Well, I must not wait——”

"If he asks more," pursued the other; "say,—say my name's Jennings. I'm the lawyer's clerk——"

"Will he know you?"

"No; I forgot that. There, then, tell him his uncle, old Alfred Davis, is dead, and has left him all his property in Jamaica, and his ships, and about 10,000*l.* in money,—and I'm Jennings. Remember that, please, as I shall get something handsome, I suppose, for finding him out and bringing the first news.—What's the matter?"

He might well ask, for Mr. Francis reeled as if he had been struck. All the consequences of such a change in the affairs of Martha's father rushed into his mind, and nearly drove away his anxiety about Gwen.

But he recovered himself at once.

"Very well; I'll tell him. Don't go away till you've seen him. There's something for yourself," he said, slipping a sovereign into the man's ready hand, and in another moment he was bounding away towards the Maen.

He was climbing it when a lad met him. "Here's a note for you, sir, from Mr. Lyon," he said. Mr. Francis opened and read it.

"All is of no use," it ran. "We've searched over the whole Maen, and now Davis has gone on to the Lladdrodd, with most of the men, to try there. Meet me at the Cwm Maen pit. Something must be done at once about the furnace there."

Mr. Francis could not help an expression of vexation. he had no option except to obey, and he proceeded at his best speed over the Maen and away to the left down the road which led past the Cwm Maen pit.

He found Mr. Lyon and some ten men there, all actively engaged.

Round the mouth of this long unused old shaft, a wall of huge loose stones had been erected. A part of it, how-

ever, in pursuance of various investigations, had been battered down, and, in consequence, nearly one-third of the yawning chasm was unprotected. Gwen had not fallen down this chief shaft, but down an excavation which had been made prior to it, and which opened into it about forty feet down.

"We're higher than I thought, Mr. Francis," said Mr. Lyon. "There must be thirty feet of pit below the place where we have opened, and that space we are filling up. The old company, you see, sank too deep. If they had stopped where we have come into their shaft they would have made their fortune, for they were quite right as to the coal being here. Now, men! With a will! Down with it! These thirty feet must be filled up so that we may make our furnace where we've opened." And, as he spoke, mass after mass of rubbish was shot down the pit, the stones striking the sides, and making a fearful roar as they fell.

"Down with the wall. That's the shortest way!" cried Mr. Lyon, leaning all his weight against the mass of stone which crowned that part before him.—Oh, if they could but know that Gwen was down below!

Over toppled the enormous weight. The men paused to hear it fall. Down it went: now against this side, now against that, the sound it made rising up louder and louder the farther it fell, till at last it reached the bottom with a crash like loudest thunder.

"Again! Take pickaxes if it's frozen! Over with it all!" shouted Mr. Lyon, becoming excited with the work. "This will be the finest upcast shaft in the country! No foul air now, Mr. Francis! Over you go!" And down, roar after roar, went the blocks and huge masses till the wall was all cast over.

As the work had proceeded Mr. Lyon had given many orders about other things, and one of the results of these

was the appearance now of a man with a bucket and a rope.

"Somebody must go down," said Mr. Lyon, "to see about the foul air, and whether we have piled up enough to found the furnace on. Who'll go?"

There was a general silence. This was not a business to be lightly undertaken.

Mr. Lyon was a man of unbounded energy and boldness, and to hold back on such an occasion was to his eyes a bad sign.

"Come!" he cried impatiently, "who'll go? Why doesn't somebody speak?" Still no response. "Well, Mr. Francis, I suppose, as none of the men volunteer——"

Even Mr. Francis, however, though thus specially invited, did not seem anxious to go on the hazardous expedition. Mr. Lyon looked grave.

"I'm wanted at No. 1 pit," he said, "where a chain has broken. But if you're all afraid of this place, why I can't leave it. So I may as well go down."

There was a general murmur. His life was of too much importance to be needlessly risked. But no one volunteered.

"Where's the bucket? Over with it. Throw that pole across, and pass the rope twice round it, because I'm heavy. You've brought a very thin rope, Williams."

"It's strong, sir."

"I hope so."

And he stepped into the bucket, and swung himself to the centre of the shaft where he was suspended over an abyss of near three hundred feet, a frail rope his only support. He steadied the bucket in which he was standing as well as he could.

"I'll jerk the rope when you're to pull up," he said, calmly. "Mind none of you stand too near the mouth of the pit, or you'll be kicking some of these boulders over upon

me. Now then! are you ready? Lower away! not too quick."

Two of the strongest men held the rope at some distance from the shaft. They began to pay out, and Mr. Lyon gradually disappeared into the darkness.

Slowly and steadily, the bucket continued to sink down for some minutes. As time passed and still the rope was payed out, it seemed as if the descent would never end. Down—down, and now the rope began to sway a little to and fro, the bucket was evidently oscillating,—and the rope went faster over the pole.

Mr. Francis had turned away to look in the direction of the Lladdrodd mountain, where the search was still going on. He saw a number of miners and others descending it, and coming towards the pit. He thought Martha was with them. He was about to wave his cap to her, when he heard a scream of horror, and, turning, saw the rope flying with inconceivable rapidity round the pole. He looked to the men who were managing it—one of them had let go! The rope had cut deep into his hand and burnt it. The other was unable to keep hold and seemed paralysed with terror. Another moment, and Mr. Lyon must be dashed to pieces!

To rush forward and seize part of the loose rope beyond the men, was the work of a second. Round his arm,—round and round his hand,—round his body, he wound the slack. "*Hold me!*" he shouted to the man who had let go. The fellow caught hold of him just in time, for the other, unable to keep his fingers clasped round the rapid rope, which cut them to the bone, was forced to let it loose too. "*Hold me!*" shouted Mr. Francis again. The momentum might drag him over. The man did, and with a fearful jerk the rope was stopped. Oh! if the strain was to break it! if the jerk threw Mr. Lyon out! No! They felt at once that the weight was at the end of it still.

It had happened too quickly for the other men to interfere. They now came up.

"Now, then, all of you! Come! Why did we leave it to two only? Let's all hold it!" cried Mr. Francis. They did so, and once more it went slowly and steadily, over the pole, till at last the strain ceased; and they knew that Mr. Lyon was at the bottom.

They stood all watching eagerly for the jerking of the rope, which should signal to them to haul in. Some minutes elapsed, but there was no sign.

"He's a very long time. I hope the foul air——" began Mr. Francis.

"Wasn't that a jerk, sir?"

"Was it? Shall we try? I hardly like to. Suppose we pull up a little and pull the empty bucket out of his reach!"

"Suppose he is being suffocated, and can't signal."

"Try then!" They did. The bucket was evidently not loaded. Some more minutes passed, but no sign.

"What can have happened? Poor Mrs. Lyon!" cried Mr. Francis.

"Don't be feared yet, sir," said one of the men. "Mr. Lyon has done braver things than this. He's what our minister calls a Leader of men; braver and cleverer than most. Don't you remember when Philip Thomas took the cap off his lamp in No. 4 pit, and there was an explosion, and none of us dared go down,—he went, and——"

"There's a plain jerk!" cried a man.

"Was there?"

"Yes." "No." "I'm sure there was!" said several voices. As they spoke there was another, and evidently an impatient signal.

"He's safe!"—"Hurrah!" "Pull in!" "Yes—there's some weight now!" "How heavy he is!" "What can he

have got with him!" "Pull!" These were a few of the cries.

They did pull, and most heartily. As they were doing so the labourers and women from the Robbers' Mountain (Lladdrodd — Ladrones) came nearer and nearer, Martha really with them. Mr. Francis could, however, think of nothing but of getting up Mr. Lyon safe. He appeared standing in the bucket, just as the others came running in. Some iron tools were with him. He was pale, but as calm as usual.

"Tell Jones to send up that old furnace stuff. Quick!" he said. "We've thrown in enough rubbish. We'll have a fire there to-night! It's first-rate work! Some of you must have tumbled your tools down with the stones; there they are." And he stepped from the bucket as it was swung to one side of the pit's mouth.

"Whatever were you about as I went down?" he exclaimed. "I had a very narrow escape of my life."

They told him, and what Mr. Francis had done. He shook him warmly by the hand and thanked him.

"You'll be a leader of pitmen yet," he said. "Tell me presently if I can help you in anything. Be sure that if I can——What's that?"

It was a scream from Martha. Some of the men had emptied the bucket of its contents, and were looking at the tools, which none of them could identify. She had taken a shoe from among them.

"Where did you get this?" she cried to Mr. Lyon.

"At the bottom. I thought, perhaps, it belonged to some one up here who had dropped it in——What's the matter with you?"

"It's Gwennie's!" she exclaimed.

There was a universal groan of horror.

"Gwen Davis's?"

"Oh Gwennie! Gwennie!" she sobbed in a passion of grief.

"Gwen Davis down the Cwm Maen!" The words passed from mouth to mouth, and people looked fearfully at each other.

"Are you sure it's hers, Martha?"

"Sure? Look! I know her shoe! Didn't Mr. Rennie of Oldport make it? Oh Gwennie! Gwennie!"

"And we've thrown down these tons and tons of stones," cried Mr. Lyon.

There was a terrible pause. At last a sudden thought struck him.

"Who claims those tools?"

"They're none of ours, sir!"

"Francis!" He and Mr. Francis walked aside. "There's something odd about this," he said. "That shoe and the tools were on top of all we threw down. How could that be? will you go down with me?"

"Oh do, James, do!" said Martha, who had followed them; "as you love me!"

"Love!" exclaimed Mr. Lyon, astonished.

"At once, dear Martha! Courage!—Yes, sir!" cried Mr. Francis. And seizing up each a lantern, they were instantly in the bucket, swinging into the centre of the shaft, and rapidly descending.

They had sunk down some distance. Daylight had nearly ceased to reach them even dimly; the dark, wet sides of the shaft were gleaming in the light of the lamps, and as yet they had not spoken. They thought only of Gwen. But suddenly Mr. Francis heard something crack.

"The bucket!" exclaimed Mr. Lyon. "It is too slight for our weight. It is giving way. Cling to the rope!"

It was a fearful moment. Both clung desperately by the rope, which was indeed a slight one. They eased their weight

on the bucket as much as possible, and they both shouted at the top of their voices to the people above.

"The shaft is too large for a speaking-trumpet, I fear," said Mr. Lyon, as calmly as if sitting in his office. "The voices will be lost in it. Let's try again."

They did, calling out as loudly as they could. In vain. They still continued to sink downwards. But as the rumble of their voices died away in the huge shaft, they thought they heard a faint cry as if in response.

"What's that?" said Mr. Lyon.

"The people above have not heard us, that's evident, by our continuing to sink," said Mr. Francis.

They shouted again, and again they heard a faint response now seemingly nearer at hand. And their lamps showed a small aperture in the side of the shaft as they glided by.

The truth flashed on Mr. Lyon.

"Don't move!" he shouted. "This is the pit! We'll come to you! Keep quite still."

"What is it?" said Mr. Francis, as they left the aperture far above them.

"She's there! She's evidently alive still, and in there. It is an inclined shaft into this chief one, made long before the old company thought they would have to go so deep as they had to do. The top used to be covered up, and I'd forgotten it. She's fallen in there, no doubt."

"Then you don't think she has fallen into the pit itself?"

"No. Why don't those fellows above stop? This bucket is certainly giving way. Hold fast!—hold for your life,—one of the staves has broken out! Don't you hear it falling down the pit? Hold, I say, for if you fall you will be dashed to atoms! Lean as little on the bucket as you can. This is terrible, but God is with us. They won't stop now

till we're at the bottom, and five minutes will land us there, even at this pace."

"I don't think I can hold on for five minutes," said Mr. Francis.

"You can if you think you can!" the other said. "I'm much heavier than you, and I WILL! Now, then, what's this about Martha Davis?" He spoke in low, determined, quiet tones. He was a man of most resolute will, and knew that the best way to keep Mr. Francis from falling was to keep him from thinking of falling, and so spoke on what he supposed was nearest to his heart.

Mr. Francis told his tale, and why Davis had refused him. Before he had finished they had reached the bottom of the pit.

"Now, then, one or other of us must go up again at once," said Mr. Lyon.

"Do you know how to get to the place where you think poor Gwen is, sir?"

"Yes. But, perhaps, you had better go up. We'll easily make a sling seat in the rope."

"No, sir; if there is no danger to you in going up, and you know how to get to her, I must stay here."

Mr. Lyon was not a man to say much, and he immediately cut the broken bucket loose from the rope, and began to make a sling in which he should sit as he went up. Mr. Francis helped him, and all was done in a few seconds.

"One word before you signal, sir," he said, as Mr. Lyon was about to jerk the rope. "It is impossible to tell what may happen to me down here."

"God only knows what may happen to us anywhere," he answered. "So we should always be ready."

"But—I mean——In fact, sir, Mr. Davis refuses me, though my father consents, and merely because he is a miner."

"I quite agree with him."

"But he is not one. He comes of good family. Just

now when I received your note I learnt that his uncle is dead, and has left him a large fortune. If—if anything should happen to me, tell her I died loving her.”

“You’re a good fellow, Francis,” said Mr. Lyon. “I’ll do what I can.” And slipping himself into the sling, he jerked the rope violently and was at once pulled up towards the little spot of light which was the pit’s mouth.

Meanwhile poor Gwennie had suffered fearfully. All through the long winter night she had lain where she fell, nearly insensible, if not at times wholly so. As day broke, and some faint glimmerings of light stole down to her, she came somewhat to herself, and then she had a dim idea of her horrible position.

But she was not one either to give way to terror or despair. She knew full well that she was safe wherever she might be; that He who tempers the wind to the shorn lambs would never allow worse to happen to her than she could bear. But she could not help feeling most acute anguish when she thought of the agonies which her unexplained absence must cause at home to her fond mother, to her father, —above all, to Martha. She knew how bitterly she would repent of the harsh words which she had spoken.

How long a time passed she knew not, when, suddenly, a roar as of loudest thunder broke on her ear, and some great body struck the place where she lay. Again, and yet again, the same sounds came to her startled ears, and as the masses of stone which were cast down the main pit, dashed from side to side, and shook her fearfully, she thought it must be impossible that she should escape.

But she lay quite still,—indeed it was almost beyond her power to move, bruised and wounded as she was. She lay still, till one crash louder than any before made her partly start up. She was immediately aware, by the cold air that swept past her, that the shock had torn something from

beside her, no doubt some old mining tools left there years before—and then all was silence.

How long that silence lasted she never knew. Presently she heard shouts and answered them, and then a voice calling to her to lie still. After this an hour or more elapsed, during which she was almost unconscious from hunger, anxiety, and pain. At the end of that time, on a slight noise, she faintly unclosed her eyes, and saw lamps in well-known hands beside her, and the faces of those whom she loved,—Martha and her father foremost.

“Forgive me, dear Gwennie,” sobbed Martha, as they lifted the young girl and were carrying her up the incline. “Forgive what I said. Oh, I have been so sorry!”

“Not more so than I have,” answered Gwen. “I ought to have been kinder and more sympathizing. Dear Martha!”

It was a painful and difficult business to get her up, she was so sorely hurt, but at last they succeeded, and she was once more breathing the air pure and free as it came from heaven.

“Father!” she whispered. Davis came to the side of the rough litter which had been improvised. “I don’t think I’m very much hurt,” she said, “but if—if it should be so, and I should not be able to speak any more, as sometimes happens you know with operations—give my fond love and blessing to dear mother,—and—and——”

“Well, dear?” he said as she paused.

“He would be a good husband to Martha, and she loves him,” she said. “Please, father, try if you cannot let Mr. Francis——”

She could not say any more, the exertion of moving had been too great. She softly closed her eyes, and fainted away.

“Oh, Mr. Lyon!” cried poor Davis, “do you think she’ll recover?”

“Recover? Yes, of course.”

“How can I ever thank you enough for your goodness, sir?”

“You need not trouble yourself about that,” he answered. “But come, Davis, I’ll tell you what you may do. Where’s Mr. Francis?”

“Here, sir. Just hauled up out of the pit.”

Mr. Francis advanced.

“This young gentleman loves your Martha. He’ll make her happy. He has done all he could to recover Gwen. Let me ask you to receive him and give that sweet girl to him; my word for it you’ll never repent.”

“I should have consented before but for the difference of our positions,” he said.

“Very sensible objection as a theory,” said Mr. Lyon. “But you need not fear in this instance.”

“Before!—then you consent now?” cried Mr. Francis.

“I do,” said Davis. Mr. Francis uttered an exclamation of delight.

“You’ve heard the news, I suppose?” he said.

“What news?”

“Of your uncle’s death.”

“My uncle?—what uncle?—death! No.”

“And yet you consented—you consent?”

“Yes.”

“Hurrah! Hurrah!” cried the young man, nearly wild with pleasure. “Congratulate me everybody! I’m the happiest of the happy!” And then he told the whole assemblage and Davis all he had heard.

I say no more. Gwen underwent an operation of some severity, but she eventually recovered. Martha and Mr. Francis were married. Davis and his family continue to live near Oldport, and I hear that Thomas Davis is to marry Esther Evans on the coming anniversary of the saving of Gwennie.

C. M. C.

NOTES ON NORWAY.

No. V.

STOCK-FISH. CROSSING ARCTIC CIRCLE. BODOE. A STRUGGLE WITH THE STRÖM. SALTDALEN. CHURCH, SCHOOL, AND PARSONAGE IN THE ARCTIC REGIONS. NATURAL TERRACES.

ON the morning of July 8th, the wind increased till it blew a stiffish gale; but we were completely protected from the sea, as our course lay through a series of sounds, for the most part very narrow, but sometimes expanding into free and open sheets of water, like the locks on the Caledonian Canal. It is a joyous thing to skim the waters in a buoyant yacht, with a snoring breeze straining the canvass, with a sparkling freshness in the air, and a scenery of extraordinary grandeur to add zest to the exhilaration and enjoyment. As the startled sea-birds soared and screamed above us, one could have thought that our own gay and restless craft claimed kindred with their airy nature. Suddenly a new feature opened. A fleet of thirty or forty stock-fish boats appeared a-head of us, bearing full cargoes from the Lofoden Islands—the richest fishing ground—to Bergen. The dried ling were, in many instances, piled in stacks almost mast-high upon the deck; and when we got to leeward of them, the fishy odour came strongly down the wind. The boats had large square sails and lofty prow and stern, like old Roman galleys. The stern was gaily painted. Some seemed to carry a considerable number of passengers. These vessels had, no doubt, been wind-bound by the breezes which brought us northward, and

were now availing themselves of the north-west breeze to pursue their voyage.

In the evening we found ourselves approaching Hestman Oe, or Horseman's Island. It is said to resemble a rider mounted on a swimming horse. But we were not at the point from which this resemblance is most apparent. This island, picturesque and grand in itself, derives an additional interest from the fact of its lying to the north of the Arctic Circle. Its lofty and peculiar form, visible to a great distance, whether it is approached from north or south, is always hailed by the Norsk mariner as an interesting landmark. It was half-past ten at night when we crossed the Circle, the event being celebrated by the loud and prolonged shout of "Gamlé Norgé," in which, like the Norwegians themselves, we sometimes gave vent to our enthusiasm. The pilot joined the chorus with all his heart and all his lungs. Favoured by a brisk breeze, next morning we found ourselves entering Bodoe Bay; lat. $67^{\circ} 15'$.

The admirer of Nature in her wildest mood might travel the world over and find no scene more suited to his tastes than that which opened upon us here. Far inland stretches the long range of Nordland's snowy mountains, of which Sulitjelma, 6200 feet in height, is the highest — presenting the appearance of smooth brows and broad fields of snow. Nearer him the lofty, fantastic cliffs, that shut in the entrance to the Salten and the Folden Fjords,* shoot up their summits to the clouds, their needle-like peaks springing upward, bare and bold, from the dazzling snow which covers the flanks of the mountains. Around him are scattered fantastic, rocky islands, of every form, among which he often finds his eye reverting to the curious rounded form

* The kindness of an artist friend, who has since visited these scenes, enables us to present a view of the Folden Fjord mountains, taken from a position a little farther north.

of the inaccessible Fugloe (or Fowl-isle), which holds so prominent a place in Miss Martineau's graceful tale of "Feats on the Fjord." Westward and northward, at a distance of from seventy to a hundred miles, the jagged summits of the wild Lofoden Islands pierce the clear heavens: they have not been inappropriately compared to a shark's jaw; but no verbal description can convey any adequate idea of the wild irregularity of the sharp series of teeth that form this celebrated chain of islands. We were fortunate enough to gaze on this marvellous scene under a cloudless sky, and through an atmosphere of the most transparent purity.

According to custom among Norwegian travellers, we lost no time in making our way to the house of the *Gjæst-giver*, or recognised host of the place. He was the principal person in the little community, and an intelligent, agreeable, and most hospitable person. His wife and daughter soon made their appearance, and they all exerted themselves to entertain the strangers. They were as intent on gaining from us Southern news as we were in getting from them a glimpse into Arctic manners and habits. They spoke with great enthusiasm of the view of the midnight sun, which the window of the room we were in commanded, and which they had witnessed some nights previous, and had a lively appreciation of the splendours of the scene which lay before them—a broad reach of the Fjord, shut in by rocky, snow-streaked islands. They disclaimed all feelings of dulness or loneliness during the long darkness of winter, and spoke of the interest with which at Christmas they watch the twilight faintly relieving the darkness about eleven o'clock, and then dying away about one: the sun, of course, not rising at all above the horizon. They employ themselves in reading and fire-side work, with occasional sleighing expeditions, to visit their neighbours. They had a

comfortable stove in the room, and the houses, though of wood, are so constructed as to resist the cold admirably. They are built (the best of them) like log-houses, then a lining of wood is inserted three or four inches from the logs; the interstitial space is stuffed with moss, and they are thus admirable non-conductors. A good piano stood in the room.

Wandering through the long street of this straggling and certainly dreary-looking town, with its dark, wooden houses, we were guided, by observing a group of children loitering at a doorway, to the school. The schoolmaster we found to be an intelligent and obliging man, but of a pale, consumptive cast of countenance. We could scarcely wonder at this, after breathing the stifling atmosphere of the room, which was totally without ventilation. In their eagerness to exclude the intense cold, they are too apt to confine the impure air. The children went through their Bible lesson very creditably, giving scriptural and intelligent answers to the questions put to them on the fall and recovery of man. It was peculiarly delightful to find the children inhabiting these remote regions familiarly acquainted with the name and the work of Jesus. How glorious will be the gathering together in a better land of those who have known and loved Him from pole to pole! The children were next examined in reading, which they accomplished with ease and fluency. Their copy-books were exhibited to us, and their writing in many cases was excellent. Their singing cannot be commended like their other performances. It was, in fact, a reproduction of the harsh and doleful chants sung in church.

There were about thirty children in the school, nearly all of them, like true Scandinavians, fair-haired, with light blue or grey eyes. Among them were several faces, both of boys and girls, of remarkable intelligence. One of our party, reckoning on the identity of human nature in all

climates, left behind a bag of sweetmeats for distribution among the children, which drew forth many a look of wondering gratitude. They rose spontaneously, and bowed and curtsied as we retired; and they evinced, by the modesty and propriety of their whole demeanour, a degree of civilisation that we sometimes look for in vain farther South. The universal prevalence of, at least, elementary education in Norway, is one of the things most gratifying to the traveller. Though our wanderings led us to many a remote and strange corner, and brought us into contact with all varieties and conditions of the people, I do not recollect that we had to do with one that could not read, while we were often struck with the intelligent and creditable way in which common boatmen and post-boys drew up their accounts. In fact, the solution of the mystery is not far to seek. The law provides that none can be confirmed without being able to read and write, and none can be married without being confirmed: *therefore*, all *can* read and write. We confess to having little sympathy with those who make an outcry against compulsory education; and, in truth, we should be very tolerant in our own country of the kind of Scandinavian despotism which should lead us to so desirable a result, as the diffusion of the art of reading among our whole population.

The gardens of the townsmen of Bodoe could boast nothing in the way of trees beyond a few spiry mountain-ashes. Potatoes evidently flourished, and peas, turnips, lettuce, and strawberries, were also grown. After some searching, we succeeded in engaging a brisk little Russian, long resident in Bodoe, to pilot us up the Salter Fjord. "John" was seventy-eight years old, but professed himself ready to start in half-an-hour,—an alacrity very different from the sluggishness which we invariably found in the native pilots. John was a little man brim-full of spirits and

fun, and afforded us no little amusement. Unfortunately we soon found that his qualifications as a pilot were somewhat meagre. Our first object was to navigate the "Ström," a point at which the Salten Fjord suddenly narrows to about the width of the Thames near Windsor. The force of the current here, except for half-an-hour at slack-water, is tremendous, forming powerful eddies and whirlpools.

When we arrived, a heavy tide was pouring through the narrow outlet, and we were obliged to beat about in the open reach below for a considerable time, waiting for slacker water. Wearied with the delay, about an hour before low water the captain resolved to make the trial. A strong breeze carried us bravely up against the current for a time; but getting near the centre, we gradually came to a dead standstill, amid the rushing waters and the whirling eddies. Fortunately for us the breeze kept steady, enabling us cautiously to turn. Had the wind failed us, we should have been left at the mercy of the furious current, an unpleasant predicament with rocks so close on either hand. The whole population of the little fishing village which stands on the Ström rock had turned out to watch the issue of our attempt. It was a moment of evident interest to them and of some anxiety to us, when our progress was arrested, and we were obliged to wheel round as best we could. The manœuvre was effected safely, and a minute more saw the current with strong arm hurrying us again into the open basin. Our little Russ was all the time in a state of frenzied excitement, rushing to and fro in everybody's way, unable to do anything but vociferate his terror in what he imagined was intelligible English. An hour later we effected an easy passage; and during the night we glided slowly up to the head of the Fjord.

It was a still Sabbath morning as we lay on the lake-like Fjord; and descrying the spire of a wooden church at

the foot of the splendid mountains that rose from the opposite side of the bay, we took to our boat and pulled for it. It was about eleven o'clock when we arrived, and the service was already begun. They were singing a psalm when we entered; but to our no small discomfiture, our appearance created a sensation we had not calculated upon. The singing was suddenly suspended, except that of the leader, who laboured on, all but alone, for a time, as best he might, while the people rose up and stretched over the galleries to witness the unwonted sight of strangers in their church. It is to be remembered, that not only the remoteness of the place, but also the difficult character of the navigation, render the visits of strangers very rare. After this temporary bustle, the congregation resumed its sober appearance, and it was apparently with devout attention that the simple assemblage listened to the sermon of Proest Körn. His text was, "Give us this day our daily bread;" and his discourse was simple and earnest. There was a something about the preacher, an evident earnestness, coupled with a subdued and chastened tone of mind, which compelled one to feel interested in him. It was a delightful thought, that this remote and simple flock had such a shepherd to tend them. After the sermon, the banns of marriage between two couples were proclaimed for the third time by the minister; after which, by a very comely usage, he offered up a short and affectionate prayer for the parties, that they might be enabled to spend a happy and godly life together. The sacraments of baptism and the supper were then administered.

After this an announcement was made by the church officer, inviting the children to come forward; upon which, seventy or eighty children, all apparently above ten years old, came and ranged themselves along the central passage; the boys standing on one side and the girls on the other—a system which was observed among the general audience,

the men and women occupying opposite sides of the church. All the adults remained, and the pastor, still wearing his pulpit robes, came down among the children. Passing up one side of the passage and down the other, he catechised them on the subject of the sermon, in a most affectionate and pleasant way; often stopping to pat on the cheek the boy or girl whose answer pleased him. This was, altogether, a most satisfactory and delightful part of the service. We could not help thinking, as we retired, that few children in more favoured climes are so well cared for as the Arctic children, of whom we might be disposed at a distance to think that they must be neglected. It is not, however, to be supposed that all the Northern parishes are supplied with ministers of such faithfulness and zeal as Pastor Körn. The service described may appear to comprehend too much for one sitting, but it is to be remembered that many come from vast distances. The parish extends from the sea-coast to the central chain of mountains which divide Norway from Sweden; so that some of the parishioners live fifty miles away from the church. In spite of this, they manifest great zeal in their attendance upon ordinances. Next day, when seven or eight miles up the valley, we met, at their cottage homes, with several females whom we had seen in church. In very extensive parishes the custom is frequent of having what are termed "Annex churches;" these are additional churches, planted in separate valleys, in which the minister officiates perhaps three or four or more times in the year. The cheapness of timber enables them to throw up elegant wooden churches, in places where we should be content with any tolerable room to meet in. In the parish of Saltdalen, of which we have been speaking, there is no "Annex" church; and the people have just to encounter the great distances the best way they can while their brief summer lasts; in winter it is quite impos-

sible for them to travel such distances. The church might contain 400 or 500 people, and was quite full,—as were most of the churches we visited.

We afterwards made the acquaintance, and enjoyed a good deal of the society, of Pastor Körn. We found him a cultivated and delightful man, from the neighbourhood of Christiana, where he had been educated. Yet he is quite content in his Arctic parish, among these poor fishermen and peasants. On being asked if he did not sometimes long for the society of cultivated people, his reply was, “We must be content to go wherever our Master sends us; and He has sent *me* here.” We found him on Monday engaged with his annual summer class of boys preparing for confirmation; many of them having come from remote parts of the parish. His wife is a comely and interesting person, like-minded with himself; and a bright little group of children is springing up around them. The manse is, perhaps, the most picturesque, in its situation, we have ever seen. A somewhat old-fashioned building, it stands on the brink of a beautiful little lake, which abounds in fish. Sheer above it rises a mountain of great steepness, yet thickly clothed with pine, except in one extensive bald spot, where the impenetrable rock affords no rooting for any kind of vegetation. To the right stretches a long deep valley, richly cultivated in the bottom, and beautifully clothed with wood on its slopes. To the left the beautiful Fjord is seen, dotted with the boats of fishermen. The glebe-lands, immediately round the manse, were covered, in part, when we were there, with crops of barley, rye, and potatoes; the remainder being laid out in grass, of that peculiar velvety closeness and delicate beauty, which are to be seen nowhere but in these latitudes, during their short summer. In front of the glebe stretches a dark pine-wood, beyond which the Salten river pours its deep stream. It is a delightful retreat

of piety, faith, and devotedness. The reader may be surprised at the mention made of the beauty of the Arctic vegetation. Nor were we ourselves at all prepared for it. There is, indeed, small variety in the trees found there—Scotch fir and birch being the only kinds we met with in Saltdalen;—of these there are large forests. The undergrowth, however, is of remarkable beauty, every spot being covered with fresh and fragrant vegetation. Cloudbberries, crowberries, blackberries, wild strawberries, and junipers abound, springing out of the most delicately beautiful grass. The pasture-lands continually reminded us of a carefully-tended nobleman's park, but without its artificial appearance, and with far more than its soft velvety appearance.

Next day, some of us in Pastor Körn's droskie, and some of us on active little ponies, we penetrated six or seven miles up the valley. Here we dismounted and fished up the beautiful Salten river, so clear that the stones at the bottom were perfectly visible even at a depth of fifteen or twenty feet. This river-side ramble led us to many delightful spots. One terrace in particular charmed us. Its sides were covered with the closest and most beautiful vegetation, the grass being of a fineness that it does not attain in our climate. Parts of the slope were clothed with wild strawberries and almost all the other berries that the country produces. Its flat summit was covered with pines gracefully hung with ringlets of Arctic moss.

Well-marked terraces supply one of the most interesting features in this valley. Three distinct tiers of them rose one above the other, the upper ones receding towards the sides of the glen. Their height was pretty uniform, and might reach forty feet. The smooth regular slopes of these terraces were richly covered with grass, flowers, &c., as above described, and the summits as flat as a bowling-

green, waved with pine. We had seen similar terraces, five or six being sometimes comprehended in the series, in many other valleys, but nowhere so well defined as in Saltdalen. According to the best hypothesis, they appear to have been caused by successive depressions in the sea-level, each terrace marking the extent of the depression to which its existence is due. When the sea-level fell, the river would, of course, force its way through the delta which itself had formed, leaving a flat and regular surface to crown the slopes of its banks. It would then form a new delta at a lower level, which, in its turn, on the further recession of the sea, would be cut through, leaving another level terrace. Such terraces form certainly one of the most characteristic features of the valley-scenery of Norway. Commencing at the banks of the river, and receding with majestic strides towards the mountains that hem it in, they remind one of the seating of an amphitheatre. Fancy might picture them as the seats from which the wood and water demons of legendary times looked down upon mortal affairs, and concocted the capricious and often calamitous surprisals of the sons of men which story ascribes to them.*

There is a solitude in all these scenes that harmonises well with their character. The parish of Saltdalen, though extending inland to a distance of eight Norsk, or fifty-six English miles, contains only fifteen hundred inhabitants. The same thing appears very strikingly when we consider that the total population of Norway is only 1,400,000, vastly inferior to our single London. And yet this population is scattered over a country whose length from north to south is nearly a thousand miles. Sweden, though also sparse, numbers 3,200,000 inhabitants. The sense of solitude in scenes of such loveliness as the valley we have been

* We are indebted to Mr. R. Chambers, in his papers, entitled "Tracings of the North of Europe," for interesting descriptions of the terraces of Norway, as well as philosophic speculations upon their origin.

describing, gives a tinge of melancholy to one's enjoyment of them. The general outlines of the view were of the most varied and attractive beauty, and every foot of ground was decked with wild-flowers and wild-berries, and yet the sun by day and the moon and the stars by night seemed almost the only beholders of all these wonders.

On our homeward ride, as we approached the Fjord, we passed through a large flock of sheep. After some parley with the shepherd, we agreed to purchase two of them for a thaler (4s. 4d. English money) a-piece, we returning the skins. We selected the two fattest ewes of the flock, and soon had them safely lodged on board. This will give an idea of the cheapness of animal food in these regions, where it is so difficult to find any better market than is secured by the simple wants of the scattered peasants. The luxuries of life are, however, not easily procured. Our chief, accordingly, desirous of acknowledging the hospitality and kindness of our amiable friend the pastor, despatched one of our party with some delicacies we had brought from England to the *Proestegaard*. These were most gratefully received. We ought, perhaps, to remark, that of simple home-made luxuries there seemed no lack in these parts. In the pastor's house in Saltdalen and in the Gjestgiver's in Bodoe, we were invited to partake of a great variety of cakes and sweet biscuits, along with cloudberry and other jam. In truth, the remote Norwegians, when at all in comfortable circumstances, are famed for their skill in the little niceties of the culinary art. Our farewell to the peaceful parsonage and its gentle inmates, and the glorious scenery in which it is enveloped, was of the most regretful kind. And there is no spot in old Norway to which we feel that memory and imagination are spell-bound with such pleasing fascination as this Arctic home of simplicity, and piety, and loveliness.

R. H. L.

LIFE IN ITS INTERMEDIATE FORMS.

No. V.

POLYZOA AND TUNICATA.

WE speak of the “*scale* of animal life,” as if species rose above species in a perfectly regular linear series, as to their development in organization, like the steps of a ladder, beginning from the lowest, simplest forms of life, and proceeding step by step without any interruption till we arrive at the highest, MAN, “who was made after the image of God.” This is, perhaps, the common notion among those who have ever attempted to consider the matter philosophically,—to contemplate Creation as a whole, a system, a plan. And the notion is aided by our systematic books. We are compelled, by the very nature of a book, to treat of creatures in this linear manner ; we cannot do otherwise : we must begin with something, then go on to something else, and so proceed till we leave off. Nobody has yet invented a book in which the pages shall run on in parallel or complex series, instead of successive ; nor would it be possible to read it otherwise than successively, if it could be so written.

However, there is much in nature to confirm the common notion. Linear series we find everywhere. Proofs may be found in these very papers ; we have treated of animals whose structure manifestly ascends in uninterrupted gradation, such as that beautiful chain we noticed in the ECHINODERMATA, for instance. It is not that the principle is not correct, but that it is not true *throughout*, it is not the *only* principle.

In fact, we find in tracing up linear gradations, points occurring ever and anon, where, though the series does not

break, other series link themselves on laterally, which may themselves be pursued linearly, and which in like manner send off side-chains, which link with other linear series.

Let us illustrate this by a homely simile. Let us suppose that a person with eyes capable of only microscopic vision had before him a purse made of netted beads, and was endeavouring to discover the plan on which it was constructed. He is able to see but a single bead at a time. He takes one and numbers it; perhaps names it: and is conscious that another is in contact with it; this also he numbers; and finds a third, and a fourth, and so on, running on in straight succession. He presently concludes that he understands the structure; it is plainly a linear series. But soon he comes to a bead,—perhaps it is number 10,—which has in contact with it not only the number 11, but also a bead at each side. If he leave the original line, which he finds he can follow on if he so choose, he will find that either of these lateral beads is the first of a series, which leads on linearly, till by and by, after sundry offshoots and bends, he comes into the original line at bead number 20, or 35, or 150, as the case may be. And from the offshoots of these secondary chains, he can pursue similar chains ever branching off and ever merging into one another. Now this would be very puzzling; and it would not be till after a great deal of examination in detail, and a great deal of “putting two and two together,” and many happy guesses, that he would at length master the idea of a quincuncial plan—the order of a net.

But suppose that the net, instead of being woven on a single plane, as all our nets are formed, were made to increase in every possible direction,—a net to be estimated by *solid* instead of *superficial* measure, like the cells which go to make up the pulp of an apple,—how would the plan be complicated! And how much more protracted observation

and study would be necessary before the inquirer could master this model by the slow study of a bead at a time !

Now we do not mean to say that the great plan of Creation can be correctly represented by a series of meshes in a plane, nor by a mass of cells in a solid, nor by circles set circularly till a larger circle is formed, and many of these set to constitute a still larger circle, and then again others still larger ; we will not set our seal to any of those models, which have been from time to time proposed with great confidence as "the natural system." But the comparison may help some of our readers better to appreciate the fact, that while there is a beautiful order in creation, the existence of which is readily discovered, it is an order not simple but highly complex in its relations.

A notable example of the breaking down of the linear arrangement occurs in a series of creatures which we have now to introduce to our readers : a series which commencing at a point far lower than that to which we have ascended in our previous observations, rises in uninterrupted gradation, though not without many lateral relations, to the very highest type of animal existence.

If we have been in the habit of picking up sea-weeds from the shore where they have been washed by the waves, or from the little sheltered rock-pools where they delight to grow, we have often seen spread over their smooth fronds what looks like a little piece of muslin, only that is more delicate, more filmy. It adheres quite firmly to the surface, so that it cannot be rubbed off ; and if we apply our thumbnail to it, we discover that, thin as it is, the substance of which its subtile meshes are composed is stony or shelly in its nature, and so hard as to scratch the nail. What is it ? It is one of the sea-mats (*Membranipora pilosa*).

We bring the magnifying power of a pocket-lens, or a microscope, to bear on it, and our sense of beauty is at once

gratified. We see a net-work of glassy cells, each closely resembling a slipper in shape, arranged in the most orderly manner side by side, yet so that the opening of one shall be in contact with the middle of its nearest neighbour, *sidewise*, while the toe of the slipper touches the heel of the next, *lengthwise*. The margin of the orifice is a little thickened, like the binding of a slipper, and there are springing up from this rim six short spines which arch over the opening, and a very long one from the front which runs up in the line of the instep. The slipper-like cell is transparent like glass, but in the substance are seen many oval bladders or cavities.

These cells are so many houses inhabited by active animals. In the specimens which you pick up on the beach nothing more than this would be seen, however closely you might examine them, but in our sample just taken out of the water, we shall be able to show much more. The broad orifice surrounded by spines is covered during life with a very delicate elastic membrane, stretched across it like the head of a drum, and towards the front of this there is a slit with two lips in the form of a crescent. From the lips of the slit a case or tube of the thinnest possible skin passes through the middle of the cell, within which plays a polype to and fro, capable of protruding itself to a great extent, as well as of retreating far into the depths of its cell, according to its pleasure. In the latter state the animal is bent upon itself with a double fold, somewhat like a person lying in bed with his knees tucked up; but when it wishes to expand itself, two pairs of muscles, which are seen in the form of threads on each side, draw the body forward, and the skin that envelopes it turns inside out, just as we draw off a stocking. It gradually protrudes from the slit as it unfolds, and then displays a number of long tentacles which are regularly packed side by side in a bundle; but when these are quite protruded, they suddenly expand into

the shape of an elegant bell or cup. The appearance of the animal is now very beautiful; it is as clear as spun glass; the sprightly motions which it exhibits increasing its beauty. Each of the thread-like tentacles seems to have a double row of black teeth, like the cogs of a watch-wheel which run rapidly along in ceaseless course; those of one side of the tentacle running towards the tip, and those of the other side towards the base. Striking and beautiful, however, as this motion is, so that it is impossible to look at it without admiration, it is not really a progression of any of the parts. This appearance of moving teeth is caused by very fine cilia, the nature and action of which have already been explained. It will be sufficient here to say, that the combined action of the whole of the cilia forms a whirlpool, the centre of which is the mouth at the bottom of the bell of tentacles, and that every atom that comes within range is sucked in and engulfed.

This is a representative of the class of animals called POLYZOA; it contains numerous genera and species differing much in the form and arrangement of the cells, but displaying a remarkable uniformity in the structure of the animals themselves. In many species the series of cells is attached to a foreign body only by its base, standing erect, often spread out and divided like a much-cut leaf, or set in single order, one cell springing out of the tip of another, and bearing a third on its extremity, with occasional branchings, so that the total structure resembles a tiny shrub.

Many of these creatures bear highly curious appendages, than which we know scarcely anything more interesting as a microscopical study. Take, for example, *Bicellaria ciliata*. On the outside of some of the cells in this species there is a little tubercle near the bottom, to which is articulated, by a slender joint, an organ which has been aptly compared to the naked head of a vulture. This organ has a beak with

two mandibles, the lower of which alone is moveable, opening and shutting like that of a bird, but with far greater width of gape, as the lower mandible can be opened till it extends behind in the same line with the upper. Each edge of the mandible is furnished with five strongly projecting teeth; the lower has a single tooth at its point, which fits into the notch between the terminal pair of the upper. The whole back of the head is transversely wrinkled.

The movements of this strange appendage are in keeping with its curious structure. The whole head ordinarily sways to and fro upon the slender joint of the poll at intervals of a few seconds; but besides this motion, which is even though rather quick, the lower mandible which commonly gapes to its utmost extent, now and then, at irregular intervals, closes with a strong sudden snap, much like the snapping of a turtle's jaws, and presently again opens and leisurely resumes its former expansion. We may distinctly see the muscles which move the lower mandible; they occupy the position of the palate and extend back to the inner surface of the skull, if we may borrow such terms from the object which this organ mimics. It is very interesting to witness these singular motions, and it is scarcely possible to observe them without believing that the animal exercises an active volition in performing them.

But the observation of these "bird's heads" suggests curious questions. Do they form a part of the polype's organisation? Why, then, are they found attached to some cells of a specimen while others are destitute of them? Why do some specimens possess them and not others? Why are some species of a genus furnished with them while some are destitute of any such appendages, though essentially the same in every other respect? No light is thrown on these questions by anatomical examination. It would appear that the animal within is quite independent,

organically, of the "bird's head," for, as Dr. Reid has remarked, and as we have personally observed in several species, the "bird's head" continues to move for a considerable time after the death and decomposition of the polype. It has been suggested that the use of the organ is to grasp and kill passing animalcules, which then may be drawn into the cell by means of the ciliary currents of the tentacles; and this appears not improbable, and receives confirmation from the toothed structure of the beak.

Many members of this Class possess organs analogous to these, but differing considerably in the details of their construction; and some are also furnished with long stiff bristles, which moving freely on a joint at the base, can be made, at the will of the animal, to sweep across the face of the cell with considerable force, perhaps with the view to clear it of any extraneous matters that might otherwise annoy or hurt it. Some genera, which have no organs answering to these, inhabit membranous cells instead of shelly ones, as *Bowerbankia* and its allies.

From the POLYZOA the transition is easy and short to the TUNICATA. The essential structure is the same in both. The body consists of a sac, with two orifices, usually placed near together, or the discharging one on one side, and a little below the receiving orifice. The circle of tentacles around the mouth of the Polyzoan is reduced in the Tunicate (*Ascidia*) to short processes, which guard the orifice, and a similar circle is conferred upon the discharging one. On the other hand, there now appears a distinct breathing organ in the form of a hanging bag of membrane, the inner surface of which is covered with oblong cells, set in rows, and these cells are lined with cilia, whose movements resemble those of a toothed wheel. The breathing cilia are, in short, transferred from the projecting tentacles to the interior of the body. There is,

moreover, in the TUNICATA a pulsating heart, and also a circulation of blood.

In many families of this Class the individual animals are aggregated together like those we have just described, having a common corporate, as well as an individual life. Such are the brilliantly-coloured masses, like stars set in coloured jelly, that are common on sea-weeds and submerged stones. These are the *Botryllidæ*. We know of no example of an isolated Polyzoan; they are all compound animals, though in a few cases the cells stand up singly and remotely, from the common uniting root-thread; but in the TUNICATA we find many examples of single life. Of this sort are the strange uncouth creatures that are so abundantly brought up by the dredger from the sea-bottom, attached to stones and old shells, resembling a bag of tough leathery skin, with two orifices, and hence called *Ascidia*, from the Greek word *ἀσκός*, a leather bottle. Some of these are large, rough with irregular lumps and depressions, and opaque; others are smaller, smooth, pellucid, and brilliantly coloured. If they are plunged into a vessel of sea-water we see the orifices periodically opened wide, and suddenly contracted to a point; and by careful observation we may detect the entering and outgoing currents of water that pass through these apertures.

There are some species which, though not strictly compound, are aggregated together in a highly curious manner. Such are the *Salpæ*, which are found swimming in the free ocean — sometimes solitary, sometimes united into long flexible chains of transparent animals, which swim with serpentine movements. The genus *Pyrosoma* contains animals aggregated in another manner. These are lengthened Ascidians, united to each other so as to compose a long free tube, open at one extremity and closed at the other. This is also an oceanic genus, and is remarkable for being vividly

luminous, the light displaying the most gorgeous and varied hues. We shall close this memoir with an extract from Mr. Bennett's "Wanderings," in which he records his own observation of these interesting animals.

"On the 8th of June, being then in lat. $0^{\circ} 30'$ south, and long. $27^{\circ} 5'$ west . . . late at night, the mate of the watch came and called me to witness a very unusual appearance in the water, which he, on first seeing it, considered to be breakers. On arriving upon the deck, this was found to be a very broad and extensive sheet of phosphorescence, extending in a direction from east to west, as far as the eye could reach. The luminosity was confined to the range of animals in this shoal, for there was no similar light in any other direction. I immediately cast the towing-net over the stern of the ship, as we approached near the luminous streak, to ascertain the cause of this extraordinary and so limited phenomenon. The ship soon cleaved through the brilliant mass, from which, by the disturbance, strong flashes of light were emitted, and the shoal, judging from the time the vessel took in passing through the mass, may have been a mile in breadth. The passage of the vessel through them increased the light around to a far stronger degree, illuminating the ship. On taking in the towing-net, it was found half filled with *Pyrosoma* (*Atlanticum*?), which shone with a beautiful pale-greenish light, and there were also a few shell-fish in the net at the same time. After the mass had been passed through, the light was still seen astern, until it became invisible in the distance, and the whole of the ocean then became hidden in darkness as before this took place. The scene was as novel as beautiful and interesting."

P. H. G.

ON THE EVIL ANGELS.

(Concluded.)

THERE are two cases of the agency of evil spirits recorded in the New Testament, sufficient to prove to all who sincerely admit the truth of our Scriptures, that the powers attributed to demons were not a mere description in figurative language of natural disease, nor any mere delusion of a superstitious and enthusiastic imagination, but literally and undoubtedly a fact. The one is our Lord's temptation by Satan in the wilderness; and the other, the case in which Jesus is recorded by three of the Evangelists to have relieved a demoniac, and permitted the demons to enter into a herd of swine. In the temptation of the *Son of God*, and in the possession of *brute animals*,—such as the entrance of the demons into the herd of swine,—the influence of *imagination* could have no place. In the first, the Divine Patient was *above* its delusions; in the other the *brute* was as much below it. The narrative of the transaction among the Gadarenes, indeed, is so perfectly decisive that those who are resolved to maintain, at all hazards, a contrary theory, have found in their attempts to explain away the words of the Sacred Writers, their ingenuity, and, I may add, their credulity, not a little taxed. Some of these rash and profane interpreters explain the transaction by saying that it was the maniac himself—the man who *imagined* himself possessed by a legion of demons, who, in a paroxysm of frenzy (of course *before* his cure), drove the herd of swine over a precipice into the lake, and who immediately *afterwards* was cured of his malady by Jesus!

Now this is completely at variance with the narrative of all three of the Evangelists, for they all agree in describing the herd as driven over the precipice *after* the demons were gone out of the man; that is, after his cure was completed. And the whole transaction must have passed before the eyes of the Apostles and other Disciples, who were in attendance on Jesus, as well as of the keepers of the swine: so that we must, if this theory is received, suppose all of these to have combined to falsify the narrative in a most important point.

No one, even a retired student, more conversant with books than with the habits of different kinds of animals, can doubt that it must have been at least a very strange and striking spectacle to see a man driving—not such animals as sheep, but a herd of two thousand swine,—not from one field to another, but over a cliff into a lake! One can hardly pronounce, perhaps, what is or is not *possible* to be effected by a furious maniac, with terrific cries and frantic gestures. But, certainly, if such a thing *had* taken place, it must have been what none of the spectators could be deceived in, and must have made a strong impression on them. Yet *all* the Evangelists agree, that no such thing did take place; all giving a totally different account of the transaction.

Moreover, they all agree in saying that the Gadarenes came and “besought Jesus to depart from their country;” considering that it was He who had caused the destruction of the herd. But if the keepers of the swine had seen that it was the *maniac himself* who had done them this damage, they could never have felt this displeasure and dread, towards the very person who had *cured* that maniac. One might as well suppose they would have been displeased with a man for quenching a destructive fire, or stopping a raging pestilence.

We must suppose, therefore, according to the above

theory, this portion also of the narrative to have been a fabrication.

Now, one may fairly ask any one who believes the Evangelists to have falsified their history in such material points, whether he can trust them at all, for anything? and whether such witnesses would be received at all in any Court, or rejected with indignant scorn?

Those, then, who adopt such a theory might as well go on to interpret *other* parts of the Gospel narrative on a similar plan. And many amongst them have thus gone on. The tempest, for instance, which our Lord quelled with a word, and which his disciples represented as having *suddenly* ceased on his speaking, they maintain, had at length abated as all storms do. His walking on the water was, they tell us, merely a mode of expressing that He *waded* along a shallow portion of the Lake! And of the sick persons He was said to have cured, some of them had *accidentally* recovered just at the time when they were brought to Him, some long before, and some long afterwards, and some not at all; and, in short, the disciples originally joined Jesus for *no reason* at all, and afterwards fabricated the accounts of His mighty works.

All this, if it were not so profanely presumptuous, would be simply ridiculous, from its excessive absurdity. For instance, suppose some historian maintaining that the vast armies which Napoleon Buonaparte is described as bringing into the field, and his prodigious trains of artillery, and his wonderful victories, are far beyond the bounds of credibility, and are to be set down as what are in modern times called Myths; and adding that these splendid legends were gradually invented, and more and more exaggerated, in order to do honour to this Napoleon, *after* he had attained an Empire; he having raised himself from a very humble station to that Empire, and subjugated the greater part of

Europe, at the head of a handful of *unarmed* followers, and without fighting any battles at all. If any one were supposed serious in maintaining such a theory, he would be reckoned an idiot or a madman. And yet men are to be found maintaining a parallel theory, and, professedly at least, believing such things, and all the while imagining themselves not credulous, not perceiving that he who rejects something wonderful, when the only alternative is to believe something still *more* wonderful, is at once weakly incredulous and weakly credulous.

Such theorists afford abundant proof how difficult it is to stop short of a rejection of Scripture, if we once begin by making our *own conjectures the standard by which to try Scripture*, instead of taking Scripture as the standard for ourselves. They forget one great and important distinction between the works of any writers who do not pretend to Divine revelation, and the books of the Sacred Writers. We may hold such works, for instance, as those of Aristotle, or Cicero, or Bacon, in great esteem, without believing what we find in them any further than our own reason approves; and even, if we reject, without sufficient reason, some part of what these authors teach, and thus lose a part of the truths they inculcate, we may yet profit by another part and be in no danger of continually rejecting more and more. But it is not so with a writer who professes (as the Apostles do) to be communicating a divine revelation, imparted to him through the means of miracles. If we reject as false any *part* of the *religion* which he professes himself divinely sent to teach, we cannot consistently believe but that his pretensions are either an imposture or a delusion. What is revealed to us, therefore, in Scripture, (however different it may be on any point from what he might have conjectured) is to be received with humble faith and reverent docility.

And now, if in this spirit, and with sincere desire, no

for the increase of speculative knowledge, but for practical benefit, we make the inquiry into the reasons for which these Scripture-revelations were made concerning the existence and agency of evil spirits, I think, that some reasons may without much difficulty be perceived. And though an inquiry why evil spirits *exist* would be fruitless and presumptuous, an inquiry why it was made *known* to us in Scripture may be both allowable and profitable. One reason why some revelation on the subject was judged necessary has been already noticed—to warn men against being seduced into the *worship* of those beings which, at the first introduction of Christianity, most of the world had been accustomed to worship. And another practical purpose is not difficult to be discovered. Whether anything be made known or not concerning the existence of evil spirits makes indeed no difference as to the difficulty of *explaining* the existence of evil—but it may make a great difference as to the *avoiding* of evil. And the great object of Scripture revelations throughout, seems to be to assist us, not in *accounting* for evil, but in escaping it. The Bible acts the part of a judicious physician, who, instead of entertaining his patients with a long and curious dissertation—such as they could little comprehend—on the nature and origin of their disease, employs himself in actively administering remedies, and teaching them how to avoid disease. Now, I would appeal to the feelings of any right-minded man, whether the greater dread and detestation of sin is not likely to be produced by our being plainly informed that there are Evil Spirits striving to seduce and deceive—or, to urge and drive us—into rebellion against God:—whether our minds are not so formed as to be more watchfully careful against being overreached and deceived by a personal enemy, than against a temptation arising only from *things*—more zealously active in resisting the attacks of a *living Being* who seeks our

destruction than in counteracting our own inclinations. It is true that the thought of being given up to the base and brutish propensities of the meaner portion of man's nature—of losing the proper dignity of a rational being—of forgetting God, and living as strangers and aliens before Him—and of forfeiting immortal happiness,—all this is, indeed, very shocking to a well-disposed mind, but yet not so horrible and appalling as the thought of being ruled over, and directed by, an Evil Spirit—of cherishing in our bosom the great Enemy of mankind, or agents of his, who hate both God and us, and who are busied in preparing men to share in their final ruin. And even the final doom of those who shall have been seduced by these tempters, is rendered—as our Lord seems plainly to imply—the more terrific from its being shared with them; since he forewarns us of impenitent sinners being sentenced to the “fire prepared for the Devil and his angels.”

Now the very unpleasantness of these thoughts, which is what has led some men to deny, or explain away, the doctrine, and others to keep it out of their thoughts—is the reason why God has revealed it. He would not have taught us the existence of Satan and his angels merely to alarm us, if it had not been *true*: but, it being true, it is in His *mercy*, He has set before us all the horrible reality, that we may be the more active and resolute in seeking to escape and to guard against such an Enemy. He knows that there is a kind of ardour and energy infused into the human breast by the thought of a contest with an *Enemy*; not with a mere thing but a person—an active Being who hates us, and who seeks our destruction, but whom God has given us power to resist if we contend firmly; and over whom we shall finally triumph, under the banner of our great Leader, Christ.

For, blessed be God, it is not only warnings of danger

that we find in Scripture, but also assurances of divine help and support against it. And though, by our own unassisted powers, we are far too weak to wrestle against such foes, we shall be far too strong, when strengthened with the might of the Holy Spirit, the Comforter, to be subdued by them; but shall be more than conquerors through Him who "by death overcame him that had the power of death." And it was on purpose, it should seem, to display His victory more openly, that it was about the time of the Redeemer's coming, that Satan was permitted more especially to exercise a direct, perceptible, and acknowledged agency. It was necessary that He who came to redeem man from the fall to which Satan had led, and the sin and death which he had brought into the world by seducing our first parents, should give in the course of His ministry some proof, by way of *specimen*, of his power over him. It was fitting that the Saviour should display His superiority, not only over physical evil, but over *moral* evil, by a sensible and perceptible victory, not only over disease and death, but also over the power and malice of Satan; in short, that the Seed of the Woman should be exhibited as "bruising the serpent's head;" that we might as it were "behold him, like lightning, fall from Heaven."

Now He who for our sakes encountered and vanquished the adversary of our souls, is ever ready and able to save us from him. It remains for us to consider whether we are in the habit of seeking His divine aid, by habitual and earnest prayer; whether we labour to be continually and practically sensible of the presence of a spiritual enemy and a spiritual friend; to be full of pious confidence in that Divine Friend, and watchful against the devices of that enemy. And those devices are manifold, for it is not to be supposed that Satan will always present the same temptation again and again in the same shape; even beasts of prey have more sagacity than

to lurk always in the same spot of the same thicket. We must therefore “watch and pray”—we must “watch” as if *all* depended on our own vigilance; we must “pray” as if *nothing* depended on it. R. W.

THE AMARANTH: OR, IMMORTALITY.

PERHAPS it has been the reader's lot some day of last summer to look down on a lordly flower-garden, where in various divisions were flaming the rival splendours of scarlet and purple, of azure and gold. But a few weeks hence a surface of black earth will be all that remains, and the short-lived glory will have gone like a vision.

When summer was in its noon, what a life was on the lawn,—what a stir was in the trees! But already that stir is hushed,—that life is dead. Along with the bees and the butterflies, the leaves have been shaken from the boughs and are entangled among the matted grass or trodden in the mire. And as soon as these withered waifs began to flutter through the darkening air, the birds of passage took their flight, and on the wings of the equinox joy sped away to balmier climes.

How wide the desolation! how like our human history! On the trunk of the last century there swarmed a life so fresh and verdant that it felt as if it could not fade; but the death-wind has blown and torn from their places the master-spirits of that time. And in the promenades, and ball-rooms, and public gardens of that day, what a blaze of beauty,—what a burst of full-blown fashion! Where is it now? Beneath the churchyard sod; like heaps of withered leaves, drifted into the family vault or obscurely mingled

with promiscuous clay ; and here and there a tattered survivor, like a funeral pennon, clinging to the desolated bough.

The hay-field, the flower-garden, the forest,—each is an emblem of our death-doomed generations. But more pensive still than this simultaneous decay is the fading of the individual flower. You cherished it in your chamber window. Perhaps an invalid yourself, you were glad at the first promise of a blossom. That bud expanded, and along with it your own heart seemed to open. Its exotic odour brought you hints of warmer, brighter regions, and its petals so soft and pure sent up your thoughts to the home of the angels. But no morrow saw its loveliness repeated. Next day it already drooped, and a few days more the glory was departed,—the withered shrub was carried out to the dead flowers' mausoleum.

The friend with whom you take sweet counsel,—the brightest and dearest presence in your home,—you yourself are such a fading flower. And there are times when the thought comes over you quite agonisingly, "All flesh is grass, and the goodliness thereof as the flower of the grass." This terrible mortality ! They drop on every side. It seems as if almost every morning you woke up to a world which contains a friend or two the fewer ; and every morning's post, every daily paper, is apt to tell some goodness that has passed away, some joy whose extinction has left the surrounding region dark and desolate. And the mourner is no less mortal. "We all do fade as a leaf, and our iniquities, like the wind, have carried us away." Detached from the Tree of Life, behold our entire generation drifting to and fro. Ensconced behind the rock or lurking in the cranny, a few may escape a little while ; and some may touch the verge and be snatched back again by the returning eddy. But the besom of Destruction plies its sleepless

vans, and soon or late the last reluctant flutterer is blown across the brink and disappears in the great eternity. It is appointed unto man to die; and the reprieve is very short. For with these mighty aspirations, and with all the possibilities of achievement and enjoyment, what are threescore years and ten? To such capacities as ours,—with a universe so vast and with our own adaptations so endless,—what a mere glimpse of existence is the best estate of man! As the Northumbrian noble said to King Edwin, “When the king and his guests are feasting round the fire on the stormy night, feeling nothing of the cold and forgetful of the wild winter weather, there darts through the hall a poor sparrow, in at one door and out at the other; the moment which the bird spends in warmth and shelter is as nothing to the long time of the tempest. And so is the brief moment of our present life to that long tract which has gone before, and which is still to come.”* And were this the whole of it,—what a tantalising taste of the banquet of being,—what a flash through the cheerful realms of existence, and then to be driven out into the blackness of darkness for ever!

Profiting by the season and its solemnising influences, let us raise our thoughts from the decay and the dying which Nature exhibits to the life and immortality which the Gospel reveals. Or as we have both combined in that passage where St. Peter says, “Believers are born again, not of corruptible seed, but of incorruptible, by the word of God, who liveth and abideth for ever. For all flesh is as grass, and all the glory of man as the flower of grass. The grass withereth, and the flower thereof falleth away; but the word of the Lord endureth for ever. And this is the word which by the Gospel is preached unto you,”—a passage in which the perpetuity of God’s truth is contrasted with

* Neander, vol. v. p. 24.

the transitory state of man on earth, and in which the believer of God's truth is represented as a partaker of God's immortality.

When God created man, He did as when He created angels ; He formed a creature inspired with His own immortality, and designed to live for ever. But that creature sinned and died. God's beloved Son assumed into union with His Godhead the soul of man and man's body also. That soul kept sinless to the last, and that body spiritualised by its transit through the tomb, He has carried on high, and enthroned in His own Heaven ; and in Himself as the first-fruits, He shows what a redeemed Humanity is capable of becoming and enjoying. In that incarnation of His, however, — in that work of life-earning obedience and death-averting expiation,—as well as in that glorious ascension,—the Saviour was not solitary. He was not acting on His own behoof. He was a Second Adam, representing a numerous family and procuring for them afresh the gift of a forfeited immortality. Nor can words express how complete and copious is that life of which Immanuel is the great Recoverer, and which commences in the soul when quickened anew by the Holy Spirit the Comforter. But it is an abundant life:—a life in its amplitude of range and largeness of enjoyment, the image of its Author's own:—a protected life,—a life really “insured,”—a life that can never more be forfeited,—a life identified with the Saviour's own, and hid with Himself in God:—an endless life ; a life which Gabriel himself will not outlive, and which derived directly from the great “Fountain of Life,” is lasting as God's eternity.

“All flesh is grass,” but believers in Jesus are no longer mere “flesh.” They are partakers of a Divine nature. They are the children of an immortal Father,—the children of that God who liveth and abideth for ever. “To as many as

received the Saviour, even to those who believed on His name, He gave the power to become the sons of God." And as long as their Heavenly Father lives, they cannot die.

"The word of the Lord endureth for ever." Our words come and go. We ourselves are always changing, and what was a genuine effusion of our hearts at one period of our history, may be no true index of our feelings afterwards. And circumstances vary. We find that we have been deceived in our estimate of character, and people turn out so different from what we took them once to be. The consequence is, that many of our past sayings are now a dead letter; and when reminded of an old promise, we are apt to feel that, were it to be repeated, we should not make that promise now. But the gifts and calling of God are without repentance; and when He proclaimed the fullest and freest Gospel to our world, He did not feel more propitious towards sinners of our race than He is feeling now. To His all-seeing eye the end was known from the beginning, and as no crime has evolved so tremendous as to modify the saying, "The blood of Jesus Christ cleanseth us from all sin," so no transgressor has arisen so gigantic as to limit the Divine forgiveness, or to form an exception in the Divine and world-embracing "Whosoever." Among all the utterances of the Most High, and all the declarations of that Faithful Witness His incarnate Son, there is not one which has faded into inanity or grown a dead letter; but, like the wise, holy, and unchanging Speaker, each is a faithful saying,—a lively oracle,—vital with Divine significance,—like God Himself, a word that liveth and endureth for ever.

Reader, admit into your mind that Gospel, and it will fill you with its own immortality. From the dark grave of ungodliness it will raise you into the sunshine of God's reconciled countenance, and breaking down the putrid vault

of corruption and earthly-mindedness; it will usher you into the resurrection-life of the new creation,—the pure pleasures and holy joys of God's own children,—nay, into something of that beatific life with which God's beloved Son is made glad for evermore. And with the living God for your Father, and the living Saviour for your Friend, and with the land of the living for your adopted country and expected home, you will verify those words of Jesus, "I am the Resurrection and the Life; whosoever liveth and believeth in me shall never die."

And just as the bleak weather sends us into our homes, and makes us thankful for the warmth and shelter we lately slighted, so separations, sorrow, felt infirmity, will send us back into these faithful sayings, and will make us gladly retreat into the truth of the Gospel;—a Gospel which has brought life and immortality to light, and which over-against Nature's death and desolation reveals an endless life, a deathless Saviour, an eternal God.

An endless life! In its ordinary on-going the hidden life may be too languid for the believer's consciousness, and it may sometimes seem ready to die. But where the faithful saying is believed a new life exists, and the more implicitly and joyfully that Gospel is embraced the more abundantly does that new life mount up in the assured and exulting spirit, and manifest itself in the holy and benignant deportment. And to not a few of God's people has it been granted so to realise the blessedness beyond, that it almost seemed as if excess of life shook down the tabernacle, and as if the fittest sequel of the history, and the truest epitaph were to record that from that day, "*Desiit mortalis esse.*"*

A deathless Saviour! Jesus "once dead dieth no more;" and it is not only to make intercession for us that

* The inscription on Dr. Jortin's grave at Kensington.

He ever liveth, but to manage and administer all those matters which might cause our hearts to be troubled. You are going a long journey, and you deposit with some trusty friend your most valued effects, and if only he lives, you know that on your return you will get a good account of them. Or the night is pitchy dark, and you are stepping from the slippery bulwarks of the ship on to the steep acclivity of the unknown shore; and although between ship and shore there is an interval and a black abyss beneath, the extended hand which grasps your own is so powerful, and it is accompanied by a voice so cordial and true, that without any tremor you spring forward and exchange your heaving barque for solid land. You are going the way of all the earth, and as there is no one else to whom you dare intrust it, in the words of the only Christian whose dying words Scripture has preserved, you cry, "Lord Jesus, into Thy hands I commend my spirit;" and as the anchor drops, and as from earthly life you step forth into the unknown Hereafter, you exclaim, "Though I walk through the valley of the shadow of death I will fear no evil, for Thou art with me," for you know whom you are believing; the everlasting arms are around you, and He who says "Lo, I am with you," is able to keep you.

" ' My friend, sincerely yours *till death,*
The world no farther goes ;
Perhaps, while ' earth to earth ' is laid,
A tear of pity flows.

" Be thou, my Saviour, then my friend,
In thee my soul shall trust ;
Who false wilt never prove in death,
Nor leave me in the dust.

" Home while my other friends return,
All solemn, silent, sad ;
With thee my flesh shall rest in hope,
And all my bones be glad."*

An eternal God ! Yes ; from the frailty and fugacity of the creature it is delightful to retreat into the permanence and constancy of the unchanging Jehovah ; and how reassuring and joyful to remember, that though the mountains depart, and the hills be removed, there is a kindness that will not depart, and a covenant that cannot be broken. After all, mutation and decay are the exception, not the rule—an incident in the history of the universe, which shall come to an end when, with one foot on the earth and another on the sea, a mighty angel swears, “ There shall be no more Time.” It may be a mere moment in the howling winter-night that the little bird spends in the blazing banquet-hall ; but before that winter began to bluster there was a summer in the world, and there will be again a summer when winter storms have ceased to rave. In such a summer our earth commenced its course, and through the weary cycle,—though not long to Him with whom a thousand years are as one day,—it is revolving back into the sunshine of its Creator’s blessing. Already the mid-winter of its grossest darkness, and its greatest crime, the murder of the Lord of glory,—that blackest, guiltiest hour is past ; and streaks of dawn on the hills of darkness, and a few flowers appearing, promise day-break and a spring ; and before the cycle is complete and the mystery is finished, with fairer scenes than Eden and one spot at least dearer to God than Eden ever knew, the redeemed and regenerate earth will find itself once more in the sunshine of its Creator’s countenance—a new earth, wherein dwelleth righteousness.

In that sleepless Wisdom and unchanging Goodness be it ours to acquiesce and rejoice ; and if we quit this scene with any prayers unanswered, or any labours uncompleted, let it content us to know that the scene is still pervaded by a Presence which controls all events for the best, and which will perfect all that ought to be permanent. And if events

are not moving to our mind,—if they do not march to that short jingle which we call harmony,—let us remember that in God's great anthem there are breaks and pauses, notes high and low, and passages very mournful, as well as others full of a merry noise, and others still of a celestial majesty. Meanwhile we cannot err if we appropriate the words of Moses, the man of God, and pray in the spirit of that most ancient Psalm :—

“ O God, our help in ages past,
 Our hope for years to come ;
 Our shelter from the stormy blast,
 And our eternal home.
 Under the shadow of thy wings,
 Still may we dwell secure ;
 Sufficient is thine arm alone,
 And our defence is sure.”

J. H.

EXCELSIOR !*

How vain the objects men pursue !
 How few keep noble ends in view !
 How few can raise the banner bright,
 Which bears in characters of light,
Excelsior !

The sordid soul who thirsts for gain,
 And seeks no other end to attain,
 His grovelling spirit cannot rise
 To join the noble band which cries
Excelsior !

* Our poetical contributions have largely accumulated ; but our friends will cheerfully join us in giving precedence to words of truth and soberness, as well as elevated Christian sentiment, from the pen of an octogenarian correspondent.

The low voluptuary see,
No higher aim than *self* has he ;
He seeks for happiness in vain,
Nor can he join the lofty strain,
Excelsior !

The man whom wild ambition fires,
Who recklessly to power aspires,
Who seeks alone the bubble fame,
'Tis not for him the glad acclaim,
Excelsior !

But there are still a noble few,
Who better, holier aims pursue,
Who, as they raise their views on high,
Breathe forth the soul-inspiring cry,
Excelsior !

The pious youth, unknown to fame,
Who boasts no high or noble name,
Still presses on in duty's sphere,
And echoes with a heart sincere,
Excelsior !

The student views with ardent eye,
The hill of science towering high,
And as the steep ascent he braves,
Exclaims, and still the banner waves,
Excelsior !

But there are heights more lofty still,—
The heights of Zion's holy hill,
Where saints melodious accents raise,
And sing in solemn hymns of praise,
Excelsior !

Higher, and higher would they rise,
To join the chorus of the skies,
Where the redeemed for ever sing,
In praise of Heaven's eternal King,
Excelsior ! Excelsior !

But here the saint is oft oppressed,
With sins and cares his soul depressed ;
His comforts fail, his foes are strong,
But still he sings the cheering song,
Excelsior !

No low attainments satisfy
The man whose gaze is fixed on high ;
He longs to love as angels do,
And still he cries, with heaven in view,
Excelsior !

Not e'en the region of the blest
Can be a place of idle rest,
But as new glories rise to view,
The saints will tune their harps anew,
And sing, and sing, Excelsior !

J. B.

Radford.

THE ROSE.

“ALL flowers that I see around me fade and die ; and yet I alone am called the fragile, the fast-fading rose. Ungrateful man ! does not my life, short though it is, minister to your pleasure ? Yea, even after my death will I not leave with you sweet odours, medicaments, and salves, full of refreshing and strengthening efficacy ? And yet I am for ever hearing you say and sing, ‘ Ah ! the fragile, the fading rose ! ’ ”

Thus plained the Queen of Flowers—perhaps in the first moment of perception of fading beauty. The maidens who stood beside her heard her, and thus spake : “ Be not angry with us, sweet little one ; nor call that ingratitude which is but deeper love, the expression of a tender preference. We behold all the flowers around us fade, and we

say, ‘flowers are made to fade;’ but for thee, their queen, we desire the immortality of which thou art worthy; we breathe the wish that a life such as thine might be for ever. And since disappointment of this desire must await us, wilt thou not permit to us the complaint with which we mourn for ourselves in thee? All the youth, the beauty, and the joy of our lives, fade as thou dost; and therefore it is that even when blooming like thee, we say, ‘Alas! the fragile, the fading rose!’ Would that like thee, too, sweet odours and precious balms might tell that our life, though short on the earth, has yet not been in vain.”

From the German of Herder.

REVIEW OF THE MONTH.

AMONG the books which have found their way to our library table, we give a special welcome to a new volume, worthy of the pen which wrote “Elijah the Tishbite,”—“The Suffering Saviour,” by Dr. F. W. Krummacher; “The Way of Salvation,” an earnest, clear, and eminently practical treatise by the most popular of living commentators, the Rev. Albert Barnes; and “A Book for Daughters,” by the Rev. Dr. Tweedie, in which rich stores of biographical incident lend a life-like freshness and enforcement to the counsels of Christian wisdom. We have also received “Horace and May; or, Unconscious Influence;” and a new edition of “Mary Elliott; or, Be ye Kind to one Another,” by Cousin Kate, whose tales have taught good lessons and inspired good feelings in so many youthful readers. To Professor W. Lyall we are indebted for a masterly work, “Intellect, the Emotions, and the Moral Nature,” giving us a comprehensive view of the present state of mental philosophy, and possessing a special

value to the Christian and theological student, owing to the ability with which questions are discussed in the territory where divinity and psychology are coterminous sciences. And as giving us information on the religious condition and prospects of countries with which we are too little acquainted, we are especially grateful for two little volumes, "Revivals and Persecutions in Sweden," by the Rev. James Lumsden, and "Roman Catholicism in Spain, by an old Resident."

Few winters have been so rich in literary promise as the approaching Christmas. A twelfth volume will complete Grote's History of Greece; Mr. Prescott is to publish a History of Philip II. of Spain, of course including the Revolt of the Netherlands and the tale of the Invincible Armada; and Mr. Macaulay announces two more volumes of his History,—of which, it is said, the first impression will contain the unprecedented number of 24,000 copies. Classical scholars are to receive a sumptuous Herodotus in four volumes, with notes by Sir Gardner Wilkinson and Colonel Rawlinson; and for readers of fiction, Mr. Dickens, Miss Sinclair, and the authoress of "Mrs. Margaret Maitland," are preparing new novels. To our stores of topography and travel-talk valuable additions will be made by Dr. Barth's Explorations in Africa, and Dr. Robinson's additional Researches in the Holy Land, Captain M'Clure's "Discovery of the North-West Passage," and the Rev. A. P. Stanley's Tour in Palestine and the Peninsula of Sinai. For lovers of poetry and art a treat is in store in Birket Foster's illustrated edition of George Herbert, and in Longfellow's forthcoming "Song of Hiawatha." Additional volumes of those tedious biographies, Moore and Montgomery, "impend over the town," as Charles Lamb would have said, "and are threatened to fall about Christmas:" whilst to our religious authorship welcome accessions are forthcoming in the Life and Remains of Dr. Ward-

law, *Memoirs of Captain Vicars* and *Miss Adelaide Newton*, and a new work by the author of "*The Philosophy of the Plan of Salvation.*"

The annual series of Exeter Hall Lectures to the Young Men's Christian Association will be commenced by Lord John Russell.

In the "*Edinburgh Review*" for October, which, by the way, is enriched by the fairest and most discriminating estimate of Tennyson that has yet fallen under our eye, there is an interesting article on "*Paragraph Bibles.*" An authorised revision of the English version involves great practical difficulties; but there is no good reason why the existing translation should not be printed on a more rational system. We have long felt a "*Library Edition*" of the English Bible a desideratum; and by splitting up a large-printed copy into half-a-dozen volumes some have done their best to supply it for themselves: but we could imagine something far better. In a little work, entitled "*The Lamp and the Lantern,*" the following remarks were made some time ago: "For practical and devotional purposes we could desire no better version of the Bible than our own truthful and time-hallowed translation. But for those purposes to which we have now been adverting, for the sake of its intelligent literary perusal, we have sometimes wished that, either in the originals or in English, some judicious editor would give us, each in a separate fasciculus, the several contributions of each sacred penman. As it is, with the sixty-six volumes of the Bible, all compressed into a single tome, we are apt to regard them, not only as homogeneous inspiration, which they are, but as contemporary compositions, which they are not. We forget that, in point of time, there is the same interval between Moses and Matthew, as there is betwixt the close of the canon and the compilation of the Augsburg Confession. And with each portion comminuted into those little paragraphs called

verses, we are apt to lose sight of the characteristic style of the various compositions. An epistle looks like a poem, and a history reads like a collection of adages or apophthegms. But, allowing one book to contain the Minor Prophets, and another the General Epistles, there would still remain from twelve to twenty inspired penmen, whose writings might, much to their mutual illustration, be bound up in separate volumes and preserved in their individual identity. We should thus have in one volume all that Moses wrote, and in another, chronologically arranged, all the writings of Paul. One volume might contain all the Psalms of David; another, those Psalms (nearly as numerous) which were indited by Moses, and Asaph, and others. In one cover might be bound up the Gospel, the Epistles, and the Apocalypse of John; and in another, that divine Song, those Confessions of a converted philosopher, and that ancient 'Wealth of Nations,' which are the inspired bequests of the Imperial Solomon. And under such an arrangement might we not hope that books, usually read in chapters or smaller morsels, might sometimes be read continuously,—taken down from the shelf, as another attractive book would be taken, on a leisure evening, and read through at a single sitting?"

Sir William Molesworth died on the 22d of October, aged forty-five,—the last lineal representative of an old and very wealthy Cornish family. A heavy speaker, and without any brilliant qualities, by dint of unflinching honesty, and a vigorous intellect unweariedly devoted to a few chosen subjects, such as the ballot and the self-government of our colonial possessions, he had attained an influential position in Parliament, and his name will be henceforth associated with the reform of our colonial administration. From an education in Edinburgh and Germany, Sir William had acquired a taste for metaphysical researches, and some

of his best years were devoted to a task which many would regard as dreariest drudgery, but which to him was a labour of love,—the editing in sixteen octavos of the works of “Leviathan” Hobbes. He is also known to have expended immense labour in compiling a Life of the Sage of Malmesbury, which, however, remains unpublished.

In a most elaborate Report prepared by Mr. R. Hunt, the Keeper of Mining Records at the Museum of Practical Geology, we find the following summary of the mineral produce of the United Kingdom in 1854:—

Tin	Tons 5,763	£690,000
Copper	„ 13,042	1,229,807
Lead	„ 64,005	1,472,115
Silver	Ozs. 700,000	192,500
Iron (Pig)	Tons 3,069,838	9,500,000
Coal (at Pits)	„ 64,661,401	14,975,000
Zinc		16,500
Arsenic, Sulphur Ores, and Sundry Minerals		500,000
		<hr/> £28,575,922

Notwithstanding taxes and high prices, life insurance makes remarkable progress. Of the English offices we do not possess the tabulated returns; but in Scotland fourteen offices give for last year about 7500 new entrants for a sum of nearly 4,000,000*l.* Of these the seven highest are:—

	New Entrants during last Year.	Sums Assured by New Entrants during last Year.
1. Life Association of Scotland	1184	£551,631
2. Standard Assurance Co.....	1046	515,117
3. Scottish Widows' Fund Assurance Society	638	455,377
4. North British Insurance Co.....	528	303,455
5. Scottish Amicable Assurance Society	732	290,465
6. Scottish Equitable Assurance Society	628	284,670
7. Scottish Provident Institution	577	258,595





Apteryx. (Apteryx Mantellii.)

HOMES OF OUR BRITISH FOREFATHERS.

DARTMOOR. (*Concluded.*)

As might be expected, we find in all parts of Dartmoor roads connecting village with village. They are usually called "trackways," and are constructed of large stones irregularly laid in the form of a causeway, generally from five to six feet broad, though sometimes occupying a much greater width. There is one of great extent traversing the district east and west from Hamildon, near the ancient circumvallation called Grimspound, to Mistor British Town. This may be traced through a considerable part of its course, and is found in high preservation on the northern slope of Chittaford Down, whence it runs due west by Hollacombe, and up the opposite hill. In the plain by Postbridge it turns towards the south.

Some of the most remarkable of the works of these ancient labourers are, however, to be seen in the curious bridges which here and there span the rivers on the Moor. These are, we believe, unique in their structure; none of the same character, so far as we can ascertain, existing in any other part of the world. These structures are justly called "Cyclopean," and would do credit to a more advanced stage of civilisation than that of the period at which they are supposed to have been erected, for they possess the great and important qualification of fitness to the place and purpose for which they were designed, and also show considerable knowledge of mechanics. There are several of these singular fabrics on the Moor; but as our space will not allow of more, we will select for description a very fine specimen which presents itself to us near a point on the road from Moreton Hampstead to Tavistock, adjoining Postbridge. There are three piers, forming with the abutments

four openings for the water. The piers are formed of slabs of granite, of which there are six layers above the foundation merely placed on each other, without cement or mortar of any description. The superincumbent stones, which are in general about fifteen feet long and six wide, are solid masses of granite laid from pier to pier, and affording a road of sufficient size and strength "for the scythed chariot of the Danmonian warrior to pass in safety." Any one visiting the Moor after a dry season, would think all this labour thrown away, and that a plank or two laid across would have answered every purpose; but let him return after a few days of heavy rain, or even a severe thunderstorm, and he will see things under quite a different aspect. Such is the sudden rise of these mountain-streams, that the waters pour down, after rain, with a force and rapidity which quickly causes a deluge over all the low lands near, foaming and rushing through their deep, rocky channels, overflowing the wide margins which are usually so richly clothed with vegetation, and attaining to twenty-five or thirty feet beyond their average depth. The moderns have taken the hint from their ancient fathers, and built the bridges which cross the Dart and other rivers somewhat on the same plan. Holne Bridge has four water-ways, one only of which is in general required, the other three being usually dry. The bridge is very solid and arched, and its parapet stands from thirty-five to forty feet above the ordinary level of the water; yet we have been told by the people who live near, that there have been times when they have put their hands into the water over that parapet, and that this immense rise has taken place sometimes within two hours, and subsides as rapidly as it rises. The strength of bridges, which, if our data be correct, have withstood from 2500 to 3000 years of such floods, and still remain in almost perfect condition, needs no comment.

Scattered about in different parts of the Moor are ancient works connected with mining, and generally supposed to be remains of the Phœnician operations. Tin is mentioned by Ezekiel nearly 600 years before Christ, and by Isaiah at an earlier period, and as by the concurrent testimony of ancient historians it was the produce of the Cassiterides, that is, of the western parts of Great Britain, we may well attribute antiquity of more than 2000 years to some of the stream-works and shoding-places, which are supposed to have existed since the time when the Phœnicians are said to have trafficked for tin on our shores.

There is one more vestige of the civil buildings of the old inhabitants of Danmonia, which is supposed by Rowe to have been formed for the protection of cattle, and which appears to be of a kind not before noticed by antiquaries. It is an elliptical circumvallation, consisting of masses of stone from four to six feet high, arranged in a double row, and set closely together. It measures 138 feet by 100 ; and there are no vestiges of hut-circles or other Druidical relics within its boundaries. This enclosure is in a small pasture-field about a furlong south-east of Moreton Church.

The erections, which appear to have been made for purposes of religious worship, are more numerous and of even greater interest than those which we have considered under the head of buildings designed for civil and social purposes. Stone avenues, and sacred circles or temples, cromlechs, rock-idols, Logan stones, rock-basins and pillars, all press on us and demand our attention, for all are found within the limited circle of land, which, as we have before said, comprises an extent of but little more than twenty miles in each direction.

The first and most important of these remains are the sacred circles or temples. We have not here examples of

structures of such magnitude as those at Stonehenge and Abury; but the specimens which Dartmoor furnishes are apparently of greater antiquity than either of the above, as is evidenced by the extreme simplicity and absence of all traces of artificial preparation in the materials of which they are constructed, as well as by the wear of the materials; for although they are built of granite or moorstone, both far more durable stones than those of which the Wiltshire temples are formed, they exhibit more of the effects of the lapse of time than is found in the stones either at Stonehenge or Abury.

It is supposed that the majestic Tors, which occupy such commanding stations on the hills of this district, formed the chief temples and places of supreme worship in Devonshire, and certainly no temples built with hands could equal the solemn grandeur of these mighty masses of rock.

All Druid temples were wholly without roof, and open to the sky, circular in form, and frequently enclosing cairns or kist-vaens within their bounds:—the most obvious distinction between them and the hut-circles being, that in the former the stones are erected at a distance from each other, whilst in the latter they stand close together, so as to form a solid wall. Dr. Stukely, in his interesting and learned disquisition, “The British Druidical Temples,” divides them into three classes, simple circles, circles with a serpentine avenue passing through them, and circles with wings. Most of the Dartmoor structures are evidently of that which Stukely calls the first order; that is, they are simple circles without avenues or wings. There are many of this character on the Moor; one consisting of two circles, the circumferences of which almost touch each other, is to be found by Sittaford Tor, and is commonly called “the Grey Wethers.” These circles were originally constructed of twenty-five stones each, and each circle was 120 feet in

diameter ; nine stones remain erect in one circle, and seven in the other ; but the largest have fallen. Another of these circles may be seen at about two miles from the Grey Wethers ; but this is less perfect and smaller, the diameter not exceeding sixty feet. There is, however, another temple which offers to the antiquarian an object of real interest. This circle is found on Gidleigh Common, near the confluence of the Wallabrook and the Teign.

“ The circle at Gidleigh Common,” says Rowe, “ is by far the finest example of the rude, but venerable shrines of Druidical worship in Devonshire. The rugged angular appearance of the massive stones of which this rude hypæthral temple is constructed, forms a striking contrast to the Grey Wethers, the sacred circle below Sittaford Tor, which are of a squarer and more truncated form. The two principal columnar masses in this granite peristyle, stand at precisely opposite points of the circle ; the highest rising nearly eight feet from the surface, and the other standing upwards of six feet ; the lowest are about three feet high ; several have fallen, but some of these time-worn obelisks still maintain their erect position, and circumscribe an area of about 100 feet in diameter. There is no appearance of any central column or altar, and the whole of the enclosed area has evidently been industriously cleared of stones, as the surrounding common without the consecrated precinct is abundantly strewn with the usual moorstones.” Evidently, in connexion with this circle are two avenues of stones, one running east and the other west ; the eastern traceable for 41 yards, and the western for 140 yards. These parallelithons, or stone avenues, have commonly been considered as relics of the Cursus or Hippodrome ; but there is much to show that such can never have been their use. The ground which they occupy is in most cases wholly unsuited for such purposes, and the circumstance that they

are always in connexion with some other structure, and usually with the sacred circles, seems conclusive against such an idea. That they were "processional ways" connected with some of the solemn ceremonies of Druid worship, is scarcely to be doubted, and it seems probable that they were indications of the idea of serpentine avenues, which were in after-times more skilfully and elaborately developed.

There are many Cromlechs on Dartmoor; and amongst them is one of the finest in the kingdom. This is at Drewsteignton. Polwhele considers this to have been the sepulchre of a chief Druid, or of some prince, the favourite of the Druid order; other authorities incline to the opinion that cromlechs were a sort of primitive altar. They usually consist of three rude unhewn stones, artificially fixed in the ground, and supporting another of a tabular, but irregular form, as a canopy. The number of supporters is sometimes more than three. The Drewsteignton Cromlech is said to be incomparably more striking and curious than that at Plas Newydd, on the Menai Straits; and its neighbourhood is enriched with a much greater assemblage of Druidical relics than are to be found near that Cromlech. The name of Drewsteignton seems to point it out as having been an important and favourite resort of the Druids—"Druids' Town on the Teign"—being apparently the original of Drewsteignton.

The Logan stones, which seem to have been a very important part of the apparatus in the Druid ceremonies, are not so numerous in Devonshire as in Cornwall; and the few which exist have now nearly, if not quite, ceased to "logg." Toland states that "the Druids made the people believe that they alone could move these stones, and by a miracle only; by which pretended power they condemned or acquitted the accused, and often brought criminals to confess

what could in no other way be extorted from them." That some of the balanced stones, which are termed Logan stones, were capable of being moved with a finger under some circumstances, and not by the weight of the whole body under others, is unquestionable; and it is suggested by Borlase that the rock-basins, which are often found on them, were used to regulate this power by adding to or decreasing the weight of the part of the stone in which they were formed.

Mr. Bray records an instance illustrative of this idea at a pile of rocks called Steeple Tor. The friend, with whom he was journeying, ascended to the top stone, which projected in a peculiar manner, and overhung the lower stones; whilst Mr. Bray, who was less venturous, remained on a slab about three stones below him. "Whilst I was leaning on the rock," he says, "he moved from his position, and I felt the rock shake under him. On my mentioning this circumstance, he did not seem to give it credit; but I soon convinced him by shaking it myself, till, with some degree of apprehension, he begged me to desist." When his friend had descended to the lower rock, Mr. Bray says, "as he was now on the same spot where I stood, I requested he would move the rock, thinking that he could do it with greater ease, as he is much stronger than myself, and the rock must have been rendered somewhat lighter by his having removed from it; but my astonishment was inconceivably great at his assuring me he could not move it in the least. This convinced us he must have acted as a poise, which was confirmed afterwards by our examining the inclination of the rock, and the point whereon he stood. As one part of the rock projected considerably, it required something on the opposite side to balance it; and when this was removed, it destroyed the libration."

The rock-basins to which we have above alluded next

demand our attention. These abound in all directions, some being undoubtedly of natural formation, but others as undoubtedly the work of man. For what purpose these hollows were hewn out in the rock has been a fruitful subject of controversy among antiquarians; nor can we attempt to decide the point. They might have been used for lustration, or for other purposes, but that they belonged to the mysteries of Druid worship appears to be generally admitted. The finest specimen of these relics is on the top of Great Mistor, one of the highest hills on the Moor, and very near the site of the ancient British town of which we have before spoken. It is a circular basin three feet in diameter, and eight inches deep; its sides regularly formed, and rising straight from a flat bottom. It has a spout, or lip, hewn in its northern edge. It is in a state of high preservation, and bears evident marks of having been artificially formed. This basin is called "Mistor Pan."

Rowe tells us that these basins are commonly found "on the highest spot of the loftiest pile of the Tor, very often near the edge of the block in which they are hollowed." They vary in size, from one foot diameter to three, and are generally circular: sometimes with a lip, and sometimes without.

The rock-pillars, of which a remarkably fine specimen occurs amongst the relics near Merivale Bridge, appear to be commemorative of some important event, or else of a monumental character. That near Merivale Bridge is a shaft of unhewn granite, tapering in form, and about twelve feet high, and eight in circumference at its base. These pillars are frequent on the Moor. Sir Richard Hoare says that there are none found in Wiltshire; he refers to some in Yorkshire and Monmouthshire, but does not appear to be more aware than Mr. Herbert of the fine specimens on Dartmoor; indeed, this very interesting district has been but too much overlooked by antiquaries.

But, although as we have seen, there has already been found on Dartmoor a greater number of interesting relics, connected with the social life of our British forefathers, than have been discovered in perhaps any other part of England, it does not appear that the field is as yet exhausted. Within the last month, and since the first portion of this paper was printed, a new and highly-interesting discovery of the relics of another ancient British village has been made by Mr. Nicholas Whitley of Truro, to whose kind courtesy we are indebted for the means of adding an account of them to what we had before written.

Mr. Whitley describes the site of the villages as "being on the west slope of Trowlesworthy Hill," the summit of which is crowned by one of the fine granitic Tors, which characterise this district. Mr. Whitley says, "The hut-remains are formed of granite stones set on edge; the diameter within being from twelve to eighteen feet: the remains of enclosures, or lines of defence, are formed of rough granite blocks piled together with earth." There are three perfect enclosures, and a fourth imperfect, joining one of these others, and connecting with two hut-circles. One of the enclosures contains five huts; a second, four; whilst the third contains one, and has two set near together in the wall of the line, as if they had been placed there as a sort of gateway-guard. There are six other circles scattered about without the walls of the enclosures. How strange that this cluster of habitations, where even now, after the expiration of from two to three thousand years, we can still trace the relics of twenty houses, in which, no doubt, hearts have beat high with hope or fear,—where young men and maidens have grown up, and loved, and wedded, and borne children,—whose sweet young voices have sounded cheerily over those now barren and lonely hills,—where young and old have suffered and rejoiced

from infancy, even unto death, should never before have been discovered! For centuries they have stood in their still solitude, within a few miles of peopled towns and villages, yet unknown to man; or if by chance the village hind may in his pathway from point to point have found himself amidst those vestiges of ancient homes, he has passed them unheeded by, for none has known of the existence of this interesting assemblage of relics until Mr. Whitley of late stumbled on it.

Mr. Rowe describes a fine group of relics on the side of this same hill, and a second within a quarter of a mile, also on the same side; but of this village he seems to have had no cognisance; and Mr. Whitley says he thinks it probable there are more undiscovered relics in the same neighbourhood, but that he had not time to seek them out.

Trowlsworthy Tor is situated near the head of the Plym, and about six or seven miles from the Ivybridge station, and about the same distance from that at Plympton. It is on the eastern or northern sides of the Moor it may be reached, either from Buckfast Leigh on the former, or through Princetown on the latter; but a long reach of cross-country roads must be encountered to get to it from either point, and travelling on Dartmoor must be calculated on very different reckonings from that in most other parts of England. There is, however, so much of grand and beautiful scenery all round Trowlsbury Hill, and in every direction leading to it, that the fatigue of an excursion is more than repaid by the delight which such scenes as those which meet the eye at Plym Steps, and all through the course of that beautiful river, including Dewerstone Rocks, Shaugh Bridge, Saddlesborough, &c., will afford to all who have pleasure in beholding those glorious works of God which occupy this grand solitude.

M. D. P.

THE APTERYX, OR WINGLESS BIRD OF NEW ZEALAND.

NEW ZEALAND contains some of the most curiously formed and anomalous of birds. Being confined to a limited locality, and most of them much sought after by natives and Europeans, these birds are gradually getting more and more scarce. In a very few years the only remains and records of them will be skins or skeletons preserved in museums, and drawings and descriptions in the books of naturalists, which will be more complete than any we have of the Dodo, an extinct bird, of which a specimen seems to have been exhibited alive in London in the year 1638. Among the remarkable birds of the islands called New Zealand, may be specified the exceedingly strange-looking owl-faced Parrot (*Strigops habroptilus*), first described by Mr. G. R. Gray; the *Notornis Mantelli*, or "Mountain Maid," the only known specimen of which, and one which may possibly prove the last of the race, is in the noble Bird-Gallery of the British Museum; and the fast disappearing species of the anomalous genus, *Apteryx*, one of which, figured from the life by Mr. Wolf, forms an illustration of the present Number.

There are three ascertained species of the genus, the first specimen of which was brought from the south-east coast of New Zealand by Captain Barclay in the year 1812. Dr. Shaw described the species in the "Naturalist's Miscellany," and gave it the name, *Apteryx Australis*, the generic name* being applied to it from the wings being represented by an appendage scarcely an inch long.

Mr. Bartlett has described a second species, closely

* α privative and πτερυξ, a wing.

allied to this, *Apteryx Mantelli*. Of this, an individual, sent to the Zoological Society by Mr. Eyre, has lived and thriven in the Regent's Park since the spring of 1852, although from its strictly nocturnal habits very few of the visitors have ever seen it. A third species, smaller than the other two, and with curiously mottled and barred plumage, has been named by Mr. Gould *Apteryx Owenii*, after the distinguished man who has so ably and fully illustrated the anatomy of the genus.*

Those who have seen the Kiwi in its native land describe its favourite abode as being those places which are covered with extensive and thick beds of fern, among which it conceals itself during the glare of day. Cruise, who published in 1822 his "Journal of a Residence in New Zealand," mentions it under the name of the "emu," and tells us that the natives go out with lights after dusk, which attract the attention of the birds, when they kill them with dogs. He says that a mat ornamented with their feathers was, in his time, the most costly dress that a chief could wear. Dr. Dieffenbach† informs us, that its feathers are employed by the natives to construct artificial flies for the hooks which they employ in catching fish; and he records that at one time its flesh formed part of the food of the New Zealanders. Mr. Short‡ describes it when pursued as running with great swiftness, carrying the head elevated like the ostrich, and as defending itself when attacked by striking rapid and dangerous blows with its powerful feet and the sharp spur-like claw at the end of its rudimentary hind-toe. It has been described as beating the ground with its strong feet

* In the second and third volume of the "Transactions of the Zoological Society of London."

† New Zealand, vol. ii. pp. 44, 45.

‡ Letter to Mr. Yarrell, quoted in Gould's "Birds of Australia," vol. vi.

and legs to disturb the worms on which it feeds, and which it seizes with its long beak whenever they appear.

We are indebted to Messrs. Wolley and Newton* for an interesting account of the habits of the Apteryx in a state of captivity.

Their observations were made at night on the unique specimen now in the Zoological Gardens, and from these we take a few extracts. During the day the Kiwi sleeps, rolled into an oval shape, and only presents the appearance of a bunch of bristly brown hairs. The feet are bent under the body and the claws are contracted; for, although not a perching bird, Professor Owen has shown that it possesses the perching muscle, which gives such security to birds when roosting. The hind part of the body is elevated, from the great size of the thighs; the beak has the nostrils at the point, and reaches nearly through the feathers at the hinder part of the back, so that the breathing is unimpeded. Unlike the other nocturnal birds, its eye is very small and convex, with an expression somewhat like that of a rat or hedgehog, which is heightened by the long bristles near it, representing, in some measure, the whiskers so conspicuously elongated and developed in the mammalia whose habits are nocturnal. The eyes differ from those of all other birds in the absence, as Professor Owen has shown, of that characteristic structure, the *marsupium*. The light, at least that of a bull's-eye lantern directed at them, does not seem to affect the little black eyes, as there is none of that winking and blinking so peculiar to the expressive large eyes of the owls.

The Kiwi is very easily irritated. Mr. Wolley thus describes its mode of defence. Like the eagle in similar circumstances, it never seems to employ its beak as an offensive weapon, relying on its feet alone. "He suddenly

* "Zoologist," vol. x. (1852), pp. 3409, &c. and 3605, &c.

raises his leg, sometimes the right and sometimes the left, and strikes downwards with great force, while the other leg remains a steady and generally unmoved support. In this act he takes a great range, raising his foot quite up to his breast sometimes; I should guess, a foot from the ground as he stands upright. Occasionally he aims a blow sideways, as an eagle will do, but differing from that bird in this respect, that the kind of injury he is able to inflict, requires an impetus only to be attained by a great previous elevation of the foot, whilst the eagle has only to direct his aim by the shortest possible route.”*

Mr. Wolley describes the mode in which the Kiwi uses his long and peculiar beak. He employs it somewhat as an insect does its antennæ, or a quadruped does its nose, touching the ground and smelling as it were with it. He feeds at the Gardens on earth-worms, and on a considerable quantity of meat, cut into small pieces; the former were placed in a flower-pot over a heap of soil, into which they crawled through the hole at the bottom.

The Kiwi appears to have a good appetite, as most of the meat has disappeared before morning, and the “holes made by the beak of the bird, all over the soil, show how busy he has been in hunting for worms.” Mr. Wolley has seen the Kiwi push its beak into the light soil almost up to the eyes; and, in its native haunts, this would seem to be most likely its usual mode of obtaining food. The specimen in the Gardens has been seen to eat grubs and very young mice, as well as the two kinds of food specified above. He seems to be very fond of water; not only drinking it, but bubbling and splashing in it with his beak. Mr. Newton says that the Kiwi appeared to him to trust more to the sense of smelling than that of sight; “the frequent touching of the walls and ground with its beak and sniffing, make me

* “Zoologist,” p. 3415.

think," he observes, "that the Kiwi uses that appendage as a blind man uses his stick, not to support his body, but to reconnoitre his path."*

Mr. Yarrell first referred the Apteryx to what appears to be its true place in the system.† He refers it to the Struthious birds, and points out the decidedly rasorial nature of its legs. He remarks that the bill is grooved on each side throughout its length, and that the nostrils are pierced on each side at the end of this groove; that the apertures are elongated and covered by a membrane so suspended on the outside of each of them like a valve, that the slightest pressure against the outer surface would render the nostrils impervious and effectually defend and cover them. The beak is bony-looking, and scratched like that of a Rook,—a bird which, like the Apteryx, searches for worms and grubs in the loose soil. It has been said that it excavates deep holes in the ground in the form of a chamber, and deposits its eggs in a nest of dried fern and grasses. Mr. Wolley observes, however, that the specimen in the Gardens has never been seen to use its feet in scratching the ground, and that the long beak would probably also be much in the way if it attempted to do so. He thinks it more likely that it makes its lair in a snug corner of a good thick cover, such as the dense fern-thickets of New Zealand abundantly afford.

An egg of this bird, exhibited by Professor Owen at the Zoological Society in 1852, and figured in the "Illustrated Proceedings" of that Society, is nearly five inches long, and of a dull, dirty, greyish white. An embryo chick was also exhibited from a second egg, which showed that the young bird must be excluded, unusually well developed, and covered with a complete clothing very like that of the parent, and

* "Zoologist," p. 3610.

† "Trans. Zool. Soc." vol. i. p. 72.

capable, from its earliest exclusion, of using its limbs and beak for its own safety and support: the little wing-rudiments had their terminal hook.

We may here refer to the egg of a bird, which was obtained by the master of a merchantman from the natives of Madagascar in 1850. One of these eggs was found in the bed of a torrent amongst the *débris* brought down by the waters, another had been used as a vessel. These eggs were double the length of those of the ostrich. M. Isidore Geoffroy St.-Hilaire estimated that the largest of them would contain ten quarts and more; that is to say, the contents of nearly six eggs of the ostrich, sixteen of the cassowary, 148 of the hen, or 50,000 of the humming-bird. A few fragments of the bones were also found. The French naturalist has called the Brobdignagian Depositor of these eggs *Æpyornis maximus*.* Professor Owen has shown, however, from a comparison of similar bones that the Moa, or *Dinornis giganteus* of New Zealand, was larger than his Madagascar cousin, though both of them may have been double the size of the cassowary. Eggs are not to be depended on as objects from which to compare the relative size of birds. The egg of the Apteryx, that of the curious mound-raising genus *Megapodius*, and others which might be mentioned, are out of all comparison large when contrasted with the birds themselves. A. W.

* αἰπὺς, lofty; ὄρνις, a bird.

SCENES IN HISPANIOLA.

VI. THE SEPULCHRE.

It was scarcely dawn when the two friends, having partaken of a frugal meal, left the *ajoupa* and the sleepers, saddled their horses, and betook themselves to the mountain. There was a peak of remarkable prominence not far off, whither Gomez wished to arrive before sunrise, on account of the grand prospect which it commanded, as it was one of the loftiest summits of the Serico chain. They pushed hard, and had the satisfaction of scaling the peak before the sun had appeared, though the brightening glories of the eastern sky announced that he was at hand.

No words can describe the sublimity of a cloudless sunrise, viewed from an elevated mountainous region in the tropics. Nothing in Europe can be compared with it: the elevation, the expanse of landscape, may be, indeed, attained; but the gorgeous vegetation, the glowing hues with which all nature is painted, the magnificence of the ever-verdant forest, the sky suffused, saturated, as it were, with radiance, the rich profusion and beauty of animal and insect life, have no rival in the temperate zone: those only who have been privileged to enjoy the sight can appreciate it, and to such the memory of it is ineffaceable.

“You have travelled, Don Carlos; you tell me you are familiar with mountain scenery; say, have you seen many scenes equal to this?”

“Never,” answered the Spaniard, after he had gazed for some minutes on the vast expanse before him. “I have visited the Pyrenees, and have looked over the mountain-chains of Catalonia, and taken in at one view the whole amphitheatre of Aragon. I have stood on the top of the Sierra Nevada, whence, surrounded by tremendous precipices

of ice and snow, I have gazed upon the beauteous plains of Andalusia, with the silver Guadalquiver flowing through them, but not even that magnificent panorama, which is said to be the finest in Europe, equals this. We Castilians, you know, Señor Gomez, are reputed to be reserved and taciturn, but a hermit would warm into enthusiasm in so glorious a scene as this!"

The first gaze was towards the east; the whole of this extremity of the island was spread out beneath them, with the sinuous coast, the most remote point of which could not be less than thirty leagues distant. There were the peninsula of Samana and its deep bay, the vast plains of Higüey and Seybo, watered with many rivers, variegated with forests and patches of cultivation, and speckled over with towns and villages; while at the foot of the mountain, as it seemed, though really a dozen miles away, were distinctly seen the towns of Monte de Plate, Boya, and Baraguana, from which the thin columns of grey smoke were already beginning to arise, while the course of the Iasse could be just discerned between the eastern peaks of the chain. Beyond this vast expanded landscape the sea lay, like an encircling belt, reflecting those light clouds, which, at first painted with the richest vermilion, then rapidly glowing to the most fiery gold, heralded the approaching sun, like the magnificently attired courtiers of an Oriental monarch preceding their sovereign.

Behind, on the south, the view was shut in by the forest-covered peaks of the range, which the travellers had crossed; and the same character of prospect extended round to the west, where range beyond range stretched away, the green luxuriance of the unbroken forest successively merging into indigo, blue, and azure grey, until the mighty knot of Cibao crowned the whole, a vast mass of crumpled and rugged piles of mountains, towering into the clouds to an altitude more

than double that on which they stood. While they gazed, the sudden empurpling of the conical crown, and then the lightening up of the subordinate peaks, one by one, told that the sun was arisen. The travellers turned to behold, but to their inferior elevation he is still hidden; but now he leaps up, as it were, above the horizon, and the forest around them smiles: a few moments more, and the far-stretching plains have received the beam, and are irradiated with the golden light.

Once more they turn to Cibao—what a change! From every valley is rising up the morning mist, like a sea of cotton, throwing the various ridges and peaks into startling distinctness; the veil rapidly creeps up the distant giant's side, and, arranging itself around his lofty crown, becomes stationary, and the noble mountain is a mere shapeless mass of grey cloud in the sky.

“You have looked upon Cibao, Don Carlos! I need not tell you, who are so familiar with the history of the Admiral, how closely that mountain-peak was connected with his hopes, and fears, and disappointments. There reigned Caonabo, that indomitable cacique, the Lord of the Golden House, who was at last so strangely captured by the chivalrous Ojeda. Indeed, it must have been not very far from the foot of the mountain on which we stand, that the Spanish soldier bore away his Indian prisoner from the midst of his warriors, as a falcon pounces upon his prey.”

“I remember the story well, and greatly it heightens the interest of this magnificent prospect. But where is the Vega, that beauteous plain that Columbus so delighted to praise? Shall I not see that?”

“That, too, you shall see; it is concealed by yonder eminence; but from the other side of it we shall have a fair sight of the Royal Plain, though we shall lose what we have now looked upon. Take one more glance at the eastern plains, for you will see them no more.”

It was not long before they reached this peak, and descended by a narrow and rugged foot-path to a deep chasm, where was a tiny fountain, shaded by arborescent ferns, and areca-palms, and umbrageous mahogany trees. Multitudes of green parrots were sporting and climbing in the branches, and large beetles were glittering like gold and gems in the rays of the sun. Through this little defile the strangers made their way, when, by a sharp turn in the road, they suddenly beheld "the Painted Gardens of the Plain."

No gradually descending ranges of hills intervened to throw the lovely view into dimness; they stood at the margin of a precipice, with the Plain almost beneath their very feet. In the nearest part the eye could discern the palms of prodigious height, and other stately trees, springing from the verdant fields, or towering above the level of the forests, which looked like a wilderness of variegated foliage. Groups of cattle were grazing or ruminating in the hattes, and the frequent gardens were enamelled with many colours in all the rich glories of tropical vegetation. Numerous streams meandered through the plain, swelling the waters of the shining Yuna, which pursued its winding course from west to east, like a band of polished silver, till it was lost in the distant Bay of Samana. Many hamlets and isolated farms, with their columns of white smoke, told of the presence of man, though these were far less numerous than when Columbus saw the scene swarming with the innocent and happy Indian people. Nature was smiling in all the beauty of a paradise, and the soft and luxuriant landscape melted away in the remote distance, till the blue mountain-chain of Monte Christi rose up like a wall along its northern boundary.

"It is sad to think of, Señor Gomez," said the young Spaniard, "that the gentle race, who once peopled these forests and lovely plains, should have passed away; and I cannot think without humiliation on the horrible cruelties

that our ancestors practised upon them without either justice or mercy. There is not a trace of them left, I believe?"

"According to general belief the pure Indian race has entirely disappeared: but that is not absolutely true. One or two families yet remain who hide themselves with the utmost caution in the fastnesses of these very mountains. I accidentally became acquainted with one of these, who calls himself a cacique, and who boasts a pure lineage. I possess his confidence; and as his hut lies not very far out of our route I can bring you to him."

Nothing could have been more agreeable to De Badajar, whose interest had been much excited by the narratives of Peter Martyr, Las Casas, and Chanca. Returning to their forest path, they soon came into a region of similar rocky character to that on the other side of the chain; abrupt and precipitous cliffs of limestone mingling with the wooded slopes. Some of the cliffs were riven with many narrow clefts and perpendicular fissures, as if rent and split by some violent convulsion of nature. Into one of these the dog, whose recent wound did not prevent his accompanying them, suddenly vanished in hot pursuit of a little rabbit-like quadruped, which the planter designated an *Utia*.

When they came to the spot the cur was not to be seen, nor did he come to his master's call. Gomez, therefore, alighted and went into the fissure, and presently returned, inviting his friend to accompany him. They accordingly tied the reins of their horses to the depending twig of a tree, and squeezed their bodies through the narrow aperture.

The cleft widened as they proceeded; and at length opened into a spacious area of some fifty yards in diameter, with a solid wall of rock bounding it on every side to nearly the same height. Several trees with slender trunks were growing on the floor, which had stretched upwards toward the light, till their summits overtopped the sides of the pit; and many lianes depended from the forest above, like ropes

trailing down the rocky cliffs, so that it would not have been difficult to mount by means of them to the world above. Large broken masses of rock were heaped in places, doubtless the remains of what had once been the roof of this cavern; and at the side of one of these the dog was yelping, and scratching, evidently to get at his game.

At the opposite side of the pit was a chasm like that by which they obtained ingress; Don Carlos, exploring this, presently emerged in some perturbation, beckoning to his friend.

It was a spacious cave, having no outlet but the entrance, by the light struggling through which could be seen two rows of human skeletons, all in the same position, squatted upon their heels, and arranged in regular order. Some still bore upon their mouldering bones the discoloured and rotten shreds of cloth in which they had been enveloped. There were also some urns of rude pottery, smeared with paint, and a hideous grinning *zeme*, or idol, carved in wood.

"Ah! it is an Indian burial-cave," said Gomez, coolly resuming the important process of lighting a *cigarito*, which his friend's call had interrupted. "They are common in these sunken pits; I have seen many."

The Spaniard shook his head sadly, and thoughtfully walked forth without making any observation; and they were about to return to their horses, when "*He aquí!*" "*Aquí está!*" each exclaimed at the same instant. The coney suddenly popped out from beneath the rock which the dog was besieging, and scudded across the floor towards another shelter; but in passing a low-spread bush, a line of fire, as it seemed, shot out, and the poor little animal disappeared with a shrill cry within the bush.

"*La culebra!*" shouted the planter; "it is the yellow serpent. Wait a few moments, Don Carlos, till he has begun to swallow the utia, and we will have a sight of him."

There was an awful commotion in the bush, and the dust and dead leaves were scattered on every side. The

coney uttered a piteous wailing, which became feebler and more smothered, and soon ceased.

Gomez now quietly approached, and gently lifting the branches of the shrub, cut them off with his hunting-knife, gradually uncovering the reptile, who was so intent on his occupation, that he took not the least notice of the intrusion, but went on steadily and slowly sucking in the prey with jaws distended apparently to dislocation.

Apart from the emotion of disgust produced by the hideous mode of feeding, there was much to admire in the serpent. It was about four yards in length, and of the thickness of a man's arm, mottled or clouded with golden yellow and deep black, with a brilliant flush of purple playing over the darker parts, varying and changing in the light as the muscles worked, or as the circling coils rolled continually over each other.

The helpless prey was gradually swallowed, engulfed inch by inch; its position distinctly visible by the knobbed distension of the snake's neck as it slowly descended. During the whole process the reptile remained unheeding, and when it was completed it lay inert and lethargic.

Gomez, with that indiscriminate hatred to the whole serpent race which seems intuitive in man, but which is perhaps the result of inability readily to distinguish the venomous from the innocuous kinds, would have destroyed it with his knife: but his friend interposed; for his scientific knowledge enabled him to see at a glance that it was of the *Boa* kind, and therefore not venomous; while its comparatively small size precluded the supposition that its physical strength could make it formidable to man, a conclusion which the planter readily confirmed. It was thus left to recover its activity at leisure, while the friends returned to their steeds by the same narrow gallery through which they had entered this lone and silent sepulchre.

BRITISH MINING.

IRON.

It has been the custom with the historians of man's industries to give to the discovery of iron a date somewhat later than that which they assign for copper and tin. It appears quite certain that the ancients employed bronze much more extensively than they did iron, since we find several varieties of tools as well as swords, and spears, manufactured of the mixed metals, tin and copper, and it is rarely that we discover any ancient instrument of iron. There is good evidence, however, for believing that iron was known as early as the other metals. The process of smelting the ores of iron was a more difficult one than that by which copper or tin was obtained from their ores, hence the increased value given to that metal. Iron was offered as a prize in the great National Games of the early Grecian tribes, and masses of iron were given, and received, with as much importance as would now be attached to similar gifts of gold. We have lately received additional evidence of the fact that the Egyptians, from a very early period, were acquainted with the importance of iron. It has been discovered, that it was their practice to cast their bronze figures with a core of iron, doubtless for the purpose of giving strength to the image; and wooden tools, of a very ancient date, have been found which have had a thin casing of iron over those parts which were most subject to wear.

It is not improbable but that the ancients employed a metallurgical process for iron of a similar character to that by which at the present day the celebrated Indian *Wootz* is obtained. The Indian, with his small clay furnace and

rude bellows of sheep-skins, separates from the ore about one-third of the iron which it contains, the remaining portion being wasted. In many parts of England there exist enormous masses of iron slag, generally known as *Roman Cinders*; and these prove that the process employed by the people, to whom their accumulation is due, was an exceedingly wasteful one.

The period at which iron was smelted from the ore in this country is exceedingly uncertain; it is probable that the ancient Britons, who were considerably advanced in many of the metallurgic arts, both mined for iron and smelted the ore. The Forest of Dean, some parts of Derbyshire, and probably several districts on the eastern side of the kingdom, were the first in which iron was obtained. Previously to the discovery of coal, all iron was made with charcoal as a fuel, hence we find the remains of old furnaces in the neighbourhoods where extensive forests are known to have existed, and with the destruction of this source of fuel the localities for iron-making were necessarily changed. Many of the towns in Essex, Kent, and Surrey, were at one period celebrated as the seats of iron-making, which have not at the present day the remotest connexion with any metallurgic industry. Thaxted was at one period as noted for its cutlery as Sheffield now is; a great number of Master Cutlers inhabited this town, and expended much of their wealth in maintaining, and adding to, the beauty of their church. This town is now of a purely agricultural character, malting being its sole distinguishing industry.

The rapid destruction of the forests of "merry England" became the subject of serious consideration; and we find numerous enactments forbidding the manufacture of charcoal except in specified districts, and especially commanding the manufacturers of iron to employ only certain quantities annually. These restrictions naturally led to a considerable

reduction in the number of iron furnaces in this country ; but several active minds, feeling the importance of this manufacture, were employed in endeavours to smelt iron ores with coal. Dud Dudley was the most active in this direction. He has left us an account of his early experiments,—of the opposition he encountered on all sides,—and of the final triumph of his plans.

By the employment of coal in smelting iron this most important metal is produced at a comparatively cheap rate ; and the production has steadily kept pace with the continually increasing demand.

Iron ores are obtained in considerable quantities from many of our coal-fields,—the Yorkshire, the Staffordshire, and the Welch coal-fields, yielding an abundance of the clayiron ores, as they are called, or carbonates of iron.

Beds of iron-stone, or as it is technically termed "*mine*," occur in layers of irregular stratification with the coal. Not unfrequently these ores occur in nodules, singular in their shape and structure, usually having a small portion of vegetable matter as the nucleus around which the iron has gathered. It may not be uninteresting to study briefly the process of the formation of these beds.

We must suppose an iron salt in solution, either as a bi-carbonate, an acetate, or a sulphate. If we observe water flowing from a chalybeate spring, it will be seen that the iron separates as an oxide of iron, forming a red rust upon stones, or any objects dipping in the stream. In this case the iron exists as a peroxide ; but where there happens to be a large quantity of decaying vegetable matter present, even if the iron was in its highest state of oxidation, it would be readily reduced to the condition of a protoxide, and assume the character of a carbonate of the protoxide of iron.

These are, probably, the conditions under which the iron-stone bands of the coal-measures were formed. We may

suppose that the iron was removed from the old red sandstone rocks by the action of mountain-torrents, and being carried into great lakes, or vast deltas, full of growing plants, and mats of decomposing weeds, underwent those changes, by which it was eventually deposited in the condition of the argillaceous bands, as we now find them.

Iron ores were also formerly obtained in great abundance from the green-sand formations of the eastern counties. When the forests of these districts failed, and the iron works were removed to other localities, these ores were neglected. It is highly probable, however, that they will ere long become valuable again as a source of supply to the iron-master. The oolitic formations of Cleveland have lately been producing immense masses of iron ore; and in consequence of this new discovery iron furnaces are increasing over the Northumberland and Durham coal-fields.

The black-band iron ores of Scotland,—which were discovered by Mr. Mushett,—have been a most valuable source of supply to the numerous iron furnaces of Scotland. We learn, however, that the *black-band* is failing, under the enormous drain which there has now been for a long period, and that the Scotch iron-masters have to obtain ores from new localities.

Hæmatite iron ores,—peroxides of iron,—are found in great abundance in Cumberland. The hæmatite iron ore of Whitehaven and the district of Furness occurs in the limestone rocks of these districts. At Whitehaven the iron ore lies in an enormous fault, caused by the down-throw of the upper part of the new red sandstone to the lower beds of the carboniferous limestone, and from this fault the ore has infiltrated into the caverns of the limestone. Those who are familiar with our limestone formations must know that this rock is very commonly worn into vast hollows, no doubt by the action of water

charged with carbonic acid. The limestone caverns of Derbyshire and of Ireland are remarkable examples. Into caverns thus formed the peroxide of iron has been deposited, producing the remarkable formations, which are now yielding about 579,924 tons of ore annually. Large quantities of this iron ore are distributed over the country, and used to mix with the carbonates. At Cleator, near Whitehaven, iron of a superior character is manufactured from the hæmatite alone, and near Ulverston we find the only charcoal iron-furnaces now existing in the kingdom, in which this ore is also employed. The same ore is found extensively in the Dean Forest, in Gloucestershire, and a considerable amount is smelted at the iron-works, four in number, which are in full operation in the Forest. Hæmatite iron ore is extensively worked in several other districts, — amongst others, Cornwall and the Isle of Man, — and spathose iron ores are produced in the north of Devon, from whence they are largely exported to South Wales.

During last year, 1854, there were five hundred and fifty-five iron-furnaces in blast in Great Britain. These produced the following quantities of pig-iron, which have been ascertained with the greatest care, by personal application or special inquiry, to nearly every work in the kingdom :—

	Tons
Northumberland and Durham	275,000
Cumberland and Lancashire	20,000
Yorkshire	73,444
Derbyshire	127,500
Staffordshire	847,600
Shropshire	124,800
Flintshire	32,900
SOUTH WALES	750,000
Gloucestershire	21,990
SCOTLAND	796,604
Total produce of pig-iron in tons	3,069,838

Such is the enormous extent to which we have carried our iron manufactures in this country ; its estimated value, as produced at the furnace, being 9,500,000*l*. The processes of mining for iron ore give employment to 26,106 persons, and the metallurgical processes to a very much larger number.

The metallurgy of iron would require a more extensive space than we can afford to do justice to it. It must suffice, at present, that we simply state, in very general terms, the process, so far as to give some idea of the way in which an intractable ore is made to yield its metal.

A mixture of different kinds of ore is usually employed ; this is united with certain quantities of coal and limestone, the latter being used to facilitate the separation of the metal. This mixture being placed in tall furnaces, and ignited, a strong blast is urged by means of steam-engines, and thus the whole mass becomes intensely heated, and the heat is maintained until several tons of the metal, in a liquid state, are produced at the bottom of the furnace. At a proper time the furnace is tapped, and a stream of white-hot fluid iron flows out to channels, properly prepared in sand to receive it. These consist of a long gutter with a considerable number of lateral passages, the iron collected in the lateral spaces being called *pig iron*, from the technical terms given to those channels by the workmen, the long gutter being called the *sow*, and the lateral ones *pigs*.

Iron in this state is far from pure, and hence it is subjected to a subsequent process, in what are called puddling furnaces, by which it is freed from many of the elements of deterioration. Steel, which we must regard as a peculiar form of iron, is prepared by placing bars of iron in beds of charcoal raised to a moderately high temperature for some time.

Iron must be regarded as one of the sources of the

commercial greatness of England. The drain upon her iron beds is large; and with the extension of railways, the construction of iron ships, and the numerous other applications of this metal, that drain must naturally continue to increase. It is fortunate that new stores of iron ore are constantly being discovered, for, should the supply of the raw material fail us, England would assuredly decline as a manufacturing state,—so closely is her prosperity united with her mineral productions. R. H.

PSALMODY.

NATIONAL poetry may be regarded in two ways,—as an instrument of popular power, and as an expression of popular taste. These two elements must be combined in any poetry that can be termed national, as it will indicate the general taste by the degree of influence it attains. What is not extensively liked, will have a feeble hold and a short reign; but what is widely acceptable will strengthen the prevailing sentiment it finds, and stimulate it to a further point. By pleasing, poetry becomes popular, and by its popularity it acquires power. It must suit a people in order to sway them, and by swaying them it proves that it suits them.

National Psalmody partakes largely of both these qualities, and develops them more intensely than any other kind of poetry, as religion goes more deeply than anything else into the soul. Nothing has excited a nation more than its religion, and its sacred songs possess the same deep hold and rule by the same potent charm. The power of religious verse was shown in a most striking manner at the Reformation, and the support thus given was acknowledged by its

adversaries persecuting those who sang the popular psalmody. The early Protestants, like the later Puritans, were stigmatised as a psalm-singing people. By introducing congregational psalmody, and permitting the people to join in this favourite part of worship in their own language, instead of leaving it to a choir to perform in a dead tongue, Protestantism gained a great advantage over its opponents. What was admired in public was loved in private; and psalms not only gladdened those who sang them, but attracted others, as the first churches drew many heathens to their assemblies to hear the Christians sing.

The first endeavour to provide sacred poetry in our own language for public worship in England, was made by turning the Psalms of Scripture into verse. As early as the reign of Henry VIII. this good work was begun by Thomas Sternhold, who held an office at the court, obtained by his poetical talents. He composed thirty-seven of the Psalms in the Old Version, but they were not printed until 1549, the year of his death, and in the reign of Edward VI. A second edition in 1551 included seven psalms by John Hopkins, a clergyman in Suffolk, and, "perhaps, a graduate at Oxford about 1544." A third edition, with seven more by William Whittingham, making fifty-seven in all, was published in 1556 by the exiles in Geneva, during the persecution of Mary. One of the first acts of the Council of Elizabeth was to procure a complete metrical version in the English tongue; and in 1562 they issued the Book of Common Prayer, at the end of which was printed "The whole Book of Psalms, collected into English Metre by T. Sternhold, J. Hopkins, and others." It was under the editorial care of the Rev. J. Hopkins, who contributed 58 out of the 150, as is evident from those which bear his initials.

The first version continued in public use until set aside by the Westminster Assembly in 1643, which published one

of their own, under the superintendence of Francis Rouse, Esq., M. P. for Cornwall. This volume was adopted, along with the Assembly's Catechism, by the Church of Scotland ; but it may very fairly be questioned whether Rouse has much improved on the older work. Still, this version is fortunate in having secured the enthusiastic affection of the Scottish nation, to whom its strains are endeared as the very words which their fathers sang amid the moors and the mountains, to the music which cheered not a few of them as they marched joyfully to martyrdom.

Another metrical version was issued in 1696, with the full authority of William III., to be used in all churches of the Establishment. The authors were Tate and Brady, a barrister and a clergyman ; but, though more refined in style, its smoother, yet perhaps tamer, lines have not wholly superseded their rougher predecessors, whose terse and nervous rhymes are still preferred by many congregations.

A fourth complete version was the very excellent work of Dr. Watts, who infused the New Testament into the Hebrew Psalms, and interpreted them in a Christian sense for Christian service. His imitation of the Psalms, in conjunction with his Hymns, has had a powerful influence on the Nonconformist congregations employing it, by helping to preserve their uniformity and their soundness in the faith with more than the usual force of a creed. Watts, who has been styled by Montgomery "almost the inventor of hymns in our language," was ably followed by Charles Wesley, who, with a similar effect, has been the poet of another denomination. Others have done well with occasional psalms and hymns, but none have done so much for modern evangelical devotion as Watts and Wesley.

Upwards of a hundred names might be enumerated of those who have laboured with more or less success in English versions of the Psalms, including royal personages,

like Queen Elizabeth and James I. ; and poets of eminence, like the Earl of Surrey, Milton, Addison, Burns, Montgomery, Conder, Lyte, and Keble ; and men of various note, like Archbishop Parker, Lord Bacon, Sir Philip Sidney, and the late Sir Robert Grant. An illustration of the progress of Psalmody may be derived from the following versions of that favourite Psalm, the twenty-third, selecting the best specimen with which we are acquainted in each century since the Reformation :—

STERNHOLD : about 1540.

- 1 My Shepherd is the living Lord,
I therefore nothing need,
In pastures faire with waters calme,
He setteth me to feed.
- 2 He did convert and glad my soule,
And brought my mind in frame,
To walke in paths of righteousness,
For His most holy Name.
- 3 Yea, though I walke the vale of death,
Yet will I fear no ill ;
Thy rod, Thy staff, they comfort me,
And Thou art with me still.
- 4 And in the presence of my foes,
My table Thou shalt spread,
Thou shalt, O Lord, fill full my cup,
And Thou anoint my head.
- 5 Through all my life Thy favour is
So frankly shew'd to me,
That in Thy house for evermore,
My dwelling-place shall be.

HERBERT : 1633.

- 1 The God of love my Shepherd is,
And He that doth me feed ;
While He is mine and I am His,
What can I want or need ?

- 2 He leads me to the tender grass,
Where I both feed and rest ;
Then to the streams that gently pass :
In both I have the best.
- 3 Or if I stray He doth convert,
And bring my mind in frame ;
And all this not for my desert,
But for His holy Name.
- 4 Yea, in death's shady, black abode,
Well may I walk nor fear,
For Thou art with me ; and Thy rod
To guide, Thy staff to bear.
- 5 Nay, Thou dost make me sit and dine,
Ev'n in my enemies' sight ;
My head with oil, my cup with wine,
Runs over day and night.
- 6 Surely Thy sweet and wondrous love
Shall measure all my days,
And as it never shall remove,
So neither shall my praise.

WATTS : 1718.

- 1 My Shepherd will supply my need,
Jehovah is His name ;
In pastures fresh He makes me feed
Beside the living stream.
- 2 He brings my wandering spirit back,
When I forsake His ways ;
And leads me for His mercy's sake
In paths of truth and grace.
- 3 When I walk through the shades of death,
Thy presence is my stay ;
A word of Thy supporting breath
Drives all my fears away.
- 4 Thy hand, in spite of all my foes,
Doth still my table spread ;
My cup with blessings overflows,
Thine oil anoints my head.

5 The sure provisions of my God
 Attend me all my days ;
 O may Thy house be mine abode,
 And all my work be praise !

6 There would I find a settled rest,
 (While others go and come),
 No more a stranger or a guest,
 But like a child at home.

MONTGOMERY : 1822.

1 The Lord is my Shepherd, no want shall I know,
 I feed in green pastures, safe-folded I rest ;
 He leadeth my soul where the still waters flow,
 Restores me when wandering, redeems when opprest.

2 Through the valley and shadow of death though I stray,
 Since Thou art my guardian, no evil I fear ;
 Thy rod shall defend me, Thy staff be my stay,
 No harm can befall, with my Comforter near.

3 In the midst of affliction my table is spread ;
 With blessings unmeasured my cup runneth o'er ;
 With perfume and oil Thou anointest my head ;
 Oh, what shall I ask of Thy Providence more ?

4 Let goodness and mercy, my bountiful God,
 Still follow my steps till I meet Thee above !
 I seek — by the path that my forefathers trod
 Through the land of their sojourn — thy kingdom of love.

In 1839 the late lamented Archdeacon Hare published a Psalter, compiled from various sources, but chiefly from the Scottish version ; and this selection he edited with emendations and compositions of his own, with a view “to form the foundation of a national Psalm-book,” which he felt was yet wanting to bring our Psalmody up to the requirements of the age. The desideratum is generally confessed, and probably it is in the way of some such selection that it will be best supplied.

H. M. G.

THE DEW-DROP.

IN a far-off fairy land, where everything that was joyous and lovely possessed an innate power peculiar to itself, a beautiful Dew-drop first became conscious of its being. Its resting-place was the bud of a sweetly-scented rose, one of the smallest white Scotch, so that the gemmy drop, though a brilliant ornament, seemed a burden too weighty for the delicate petal of the flower to bear; but there it rested, and for a while seemed contented with its gay, shining, ornamental existence. But by degrees it allowed a feeling of dissatisfaction to arise, and it was thus overheard to lament the uselessness and vanity of its little life; "Here am I born to be beautiful,—that is all: I can do no good to anybody. Even were our lady Fairy Queen to place me in her crown, the sun's first rising beams would rob her of her treasure." While the Dew-drop was thus fostering discontent, a fair young girl was seen to linger at the spot. Her face was pale; her eyes told of frequent tears and sleepless nights. Some heavy burden was on her heart; it might be a first grief, a first parting, or a cruel blow from one too fondly loved, that lay so heavy there; but there she lingered, and with her eyes fastened on the flower, she drank in a lesson of hope and of peace. "My God, forgive me," she cried; "I mistrusted thy strength. This delicate flower even has its burden to bear, and it serves but to beautify and refresh it; so grant that this trial may bring out new graces to thy honour, may lead me to drink afresh at the Fountain of living water; so shall my burden be as this Dew-drop, a gem to wear, a source of refreshing to my parched soul. I must have this rose-bud," she added, stooping forward to pluck it; but though it was most care-

fully handled, the Dew-drop fell into a very narrow stream, which, hid from sight, was winding its way beneath the hedge-row. It was some moments ere the Dew-drop recovered from its fall, or could recognise its own identity amid the throng of kindred associates. The change was a marvellous one. For some time it tried to keep to itself, but in vain; it fitted in so nicely with its fellows, it could but follow on with the running stream. "What are we doing?" at length it asked one of its companions. "We are fertilising these beautiful meadows," was the reply; "see how fresh and green they are; ours is merry work. Come, no grumbling here: only do your part, and you will be happy enough." And soon the Dew-drop's tiny voice was heard mingling with the river's rill, while its glittering beauty sparkled more brightly as it lent and received brightness. By the time the sun had warmed the stream, a group of children were on its banks, and soon were bathing their youthful limbs in the invigorating water; and the drop passed over the rosy cheek of a merry laughing boy, and left a tinge more rosy still behind, it felt, that, tiny as it was, it was of some use in the world.

By noon the Dew-drop had entered on a wider course, and it was beginning to wonder what was the next work to be done; when a huge black object seemed to be drawing near with giant strides, and threatening to overburden the clear limpid stream.

"Why should we bear all this weight?" said the Dew-drop; "surely this is not our work?" But onward the vessel came, and, as the mighty burden cut smoothly through the water, the tiny Drop felt it no slight honour to aid in bearing such vast machinery upon its homeward course. As the day waned, the river's current had neared the neighbouring ocean; and, as the tide rolled on, and as the briny waves claimed kindred with the fresher rills that flowed into their

embrace, the Dew-drop resolved never more (whatever might be its destiny) to be discontented with its lot, and deem itself a useless though a brilliant burden.

Reader, are you adorned with beauty and graced by elegant accomplishments? Remember, these gifts are responsibilities to be answered for; shine not for yourself, but shine into some lonely forlorn heart, that needs a cheering beam, a kindly word to aid it on its way. Are you satisfying your conscience with foolish regrets that you are too feeble, too insignificant to do good to anybody, that there is no sphere of work open to you? Oh, as you value present real enjoyment, and as you hope for the commendation of your Saviour Judge at the Great Day, come down speedily from your cold marble pedestal of selfishness, and prove yourself a living, acting being amid the living and dying around you! Are there no waste fields of ignorance and vice to be refreshed by your tiny Drop of intelligence? no young hearts which, through your instrumentality, might be led to wash in the Fountain of living water and be clean? There is many a care-worn widow, many an orphan babe, in whose case a kind hand of assistance stretched out, though it could not remove the burden, might adjust it more to the comfort of the bearer. And do you say, "This is not my work; every heart knows its own bitterness without meddling with others' concerns?" Surely if this be the reply you give to sorrow's pleadings, you are guilty "of taking away from the words" of that Book which says, "Bear ye one another's burdens, and so fulfil the law of Christ."

C. E. M.

LIFE IN ITS INTERMEDIATE FORMS.

No. VI.

CONCHIFERA AND GASTROPODA.

SUCH of our readers as are familiar with the fish-market at Southampton have, doubtless, often seen a large sort of shell-fish which are sold under the name of "Old Maids." The fishwoman, perhaps herself an "old maid," will tell you that these humble sisters of hers, these rivals in celibacy, are dug up from the muddy margin of the harbour, into which their burrow descends a foot or more deep; that the hunter for them is aware of *their* presence by a jet of water spirted from the mouth of the hole as soon as they become aware of *his*, a fact of which his approaching footsteps inform them; and that he instantly plunges his narrow spade or fork in an oblique direction, and raises the unlucky bivalve, with a cloud of mud and water, into the air.

Now, if we examine one of these "Old Maids," which naturalists designate as the Sand Gaper (*Mya arenaria*), we find that we have an animal closely resembling those *Ascidia* that we lately described. It is enclosed in a leathery wrinkled coat, with the two orifices placed near the end of a rather long tube; the internal anatomy differs little from that of the creatures just named, except that there is an opening in the side for the protrusion of a moveable fleshy organ called the foot; but externally there is this peculiarity, that in the substance of the coat there are formed two valves or convex plates of stony substance (*shell*), which are united along one side by a hinge, and enclose the soft parts, as the leaves of a book are contained within the covers.

This, then, is a bivalve shell-*fish*, as it is commonly (though incorrectly) named, and it is the representative of

an extensive Class of animals, found all over the world in fresh and salt waters, and designated CONCHIFERA, or "Shell-bearers." There is, it is true, very great diversity in the details of form and structure that we find in this immense assemblage of animals; but all these variations can be easily traced by insensible gradation to this primal form, and thence to those lower types which we have already described. Sometimes the orifices for receiving and discharging water are prolonged into two distinct tubes with fringed extremities, as in that lovely and delicate shell that inhabits our sandy beaches, called, from its diverging rays of pink and yellow, the Setting Sun (*Psammobia vespertina*), where the two tubes when fully extended are twice the length of the shell. At other times we find the tubes again reduced to simple openings, and one of these forming a mere slit, scarcely to be distinguished from the common opening of the coat or *mantle*, as in the Mussels (*Mytilidæ*). This separation of the mantle, again, occurs in various degrees, from its condition as a mere orifice for the protrusion of the foot, to that of the Oysters (*Ostreadæ*), where it is open all round, a fleshy counterpart of the shelly valves, bordered by a short but close fringe. In the beautiful Pectens, "the butterflies of the MOLLUSCA," the mantle is still further modified, for it is furnished with four rows of long moveable contractile tentacles, and with two rows of eyes that sparkle and glow like the most brilliant gems.

Another and a parallel modification takes place in the breathing organs, which, instead of being a closed sac, as we saw it in the *Ascidia*, become thin flat leaves, much like the folds of the mantle or the shell-valves, which are placed, a pair on each side. Their structure is no less modified than their form, for instead of oval ciliated cells on the internal surface, each of the four leaves (in the Pecten, for instance) consists of a vast number of straight, slender,

transparent filaments, evidently tubular, arranged side by side, so that 1500 of them would be contained within the length of an inch. Strictly, however, these are but *one filament*, excessively long, bent upon itself again and again, at both the free and the attached end of the gill-leaf, throughout its whole extent. This repeated filament is armed on each of two opposite sides with a line of vibrating *cilia*, the two lines moving in contrary directions, exactly as on the tentacles of the POLYZOA, which are the breathing organs there; by this action a current of water is made continually to flow up and down each of these delicate filaments; so that the blood which circulates in their interior (for they are, doubtless, blood-vessels), is continually exposed throughout this, its long and tortuous course, to the action of oxygen.

Like all organic functions, the action of these *cilia* is not under the will of the animal. If, during life, a small portion of the gills be cut off, the motion of the *cilia* will convey the fragment swiftly away, with a smooth easy motion, through the surrounding fluid in a definite direction. It does not even cease with the life of the animal. A specimen which we examined had been dead at least fifteen hours, yet when we placed the torn fragments of the *branchiæ*, one after another, beneath the microscope, the energy of the ciliary action, as the wave flowed with uniform regularity up one side and down the other of every filament, filled us with astonishment. Even the next morning, twenty-six hours after death, when the tissues of the filaments were partially dissolved, the ciliary motion was still going on, on portions that preserved their integrity.

The leaves which form the mantle are useful, not only for protecting these gills and the other delicate organs which are situated within their embrace, but for manufacturing the valves of the shell. This process has been ably described

by Professor Rymer Jones, as it takes place in the Scallop (*Pecten maximus*), and we shall quote his words:—

“It is the circumference, or thickened margin of the mantle alone which provides for the increase of the shell in superficial extent. On examining this part, it is found to be of a glandular character, and, moreover, not unfrequently provided with a delicate and highly sensitive fringe of minute tentacula. Considered more attentively, it is seen to contain in its substance patches of different colours, corresponding both in tint and relative position with those that decorate the exterior of the shell.

“When the animal is engaged in increasing the dimensions of its abode, the margin of the mantle is protruded, and firmly adherent all round to the circumference of the valve with which it corresponds. Thus circumstanced, it secretes calcareous matter, and deposits it upon the extreme edge of the shell, where the secretion hardens and becomes converted into a layer of solid testaceous substance. At intervals this process is repeated, and every newly-formed layer enlarges the diameter of the valve. The concentric strata thus deposited remain distinguishable externally, and thus the *lines of growth* marking the progressive increase of size may easily be traced.

“It appears that at certain times the deposition of calcareous substance from the fringed circumference of the mantle is much more abundant than at others; in this case ridges are formed at distinct intervals; or if the border of the mantle at such periods shoots out beyond its usual position, broad plates of shell, or spines of different lengths, are secreted, which, remaining permanent, indicate, by the interspaces separating successively-deposited growths of this description, the periodical stimulus to increased action that caused their formation.

“Whatever thickness the shell may subsequently attain,

the external surface is thus exclusively composed of layers deposited in succession by the margin of the mantle; and seeing that this is the case, nothing is more easy than to understand how the colours seen upon the exterior of the shell are deposited, and assume that definite arrangement characteristic of the species. The border of the mantle contains in its substance coloured spots; these, when minutely examined, are found to be of a glandular character, and to owe their peculiar colours to a pigment secreted by themselves; the pigment, so furnished, being therefore mixed up with the calcareous matter at the time of its deposition, coloured lines are formed upon the exterior of the shell wherever these glandular organs exist. If the deposition of the colour from the glands be kept up without remission during the enlargement of the shell, the lines upon its surface are continuous and unbroken; but if the pigment be furnished only at intervals, spots or coloured patches of regular form, and gradually increasing in size with the growth of the mantle, recur in a longitudinal series wherever the paint-secreting glands are met with.*

The shell increases in thickness no less than in diameter; and this also is effected by the *mantle*; the calcareous matter being deposited, layer after layer, on the interior surface of the valve. There are no pigment-glands on the general surface of the *mantle*, and hence the interior of shells is always white or destitute of colour, except that brilliant iridescence which we are so familiar with in many shells, which constitutes *mother of pearl*. This prismatic reflection depends on *striæ*, or impressed lines, of microscopic minuteness, on the surface, and can be produced artificially on several substances. Pearls themselves are merely quantities of this calcareous matter poured out in abundance at one

* Gen. Outline, 385.

spot, often to surround some atom of sand, and thus prevent its edges from wounding the sensitive mantle.

If we now come to the other great Class of shelled animals, that named GASTROPODA, we find we have to make a considerable leap to pass the hiatus. For, in fact, there is no very close relation between the bivalves and the univalves. Possibly species may yet be discovered which will supply the links that are wanting; but this is scarcely likely. Not that there is no transition. If we take that interesting shell, called the Cap of Liberty, or the Torbay Bonnet (*Pileopsis Hungaricus*), we cannot but be struck with the resemblance which it bears to a single valve of such a shell as the Heart (*Isocardia cor*); and in some of its near allies, as the little Cup and Saucer (*Calyptræa Sinensis*), there is a subordinate shelly plate in the interior, which has been considered as the vanishing representative of the second valve.

The form of the shell in this Class is that of a cone, with the apex on one side of the centre. In the Limpets (*Patella*), the cone is short and low, and therefore unmistakeable; in the Torbay Bonnet the summit is a little rolled over, the commencement of that spiral form which we see in the Whelk and the Snail. Nay, if we take the extremes of this condition, as we see in the long many-whorled shells of the genera *Turritella*, *Scalaria*, and the like, it is not difficult to trace the same form, a cone drawn out to great length and twisted spirally on an axis.

The animals of these shells are much higher in organic development than the CONCHIFERA. They have a distinct head, with organs of touch, of vision, of hearing, and of smell, and a mouth armed with a complex array of teeth for the purpose of rasping away the solid food on which they subsist. They have the faculty of locomotion, the under surface of the body being dilated into a flat muscular foot,

the action of which may be observed by any one who chooses to look at a Snail gliding up a pane of glass. This great muscular crawling disk is so characteristic as to have given name to the Class, GASTROPODA, from two Greek words, signifying "belly-footed."

A cabinet of shells is a beautiful and interesting sight ; the rich, varied, and delicate colours, the pearly iridescence, the elaborate patterns, the porcellaneous texture, the perfect polish, the exquisite sculpture, and the graceful forms which we see profusely displayed there, must always delight the eye. No wonder that the conchologist regards his treasures, the spoils of every sea and every shore, as "an assemblage of gems," and that he delights to exhibit them as *les delices des yeux et de l'esprit*. The prices that have sometimes been given for rare or beautiful specimens would be considered fabulous, were they not capable of indubitable proof. "In 1753, at the sale of Commodore Lisle's shells, at Longford's, four Wentletraps (*Scalaria pretiosa*) were sold for seventy-five pounds twelve shillings, viz.—one not quite perfect, for sixteen guineas ; a very fine and perfect one for eighteen guineas ; another for sixteen guineas ; and a fourth for twenty-three pounds two shillings."

But higher prices than these have been given. That in Mr. Bullock's Museum, supposed to be the largest known, brought at his sale the sum of twenty-seven pounds, and was estimated in 1815 at double that value ; and there is a tradition that a specimen was sold in France for 2400 livres, or 100 louis !

Before we dismiss these examples of the great and populous "middle-class" of animal life, we must give a momentary glance at the Cuttles and Squids (CEPHALOPODA), which, while they possess much in common with the Univalve MOLLUSCA, rise still higher in the scale than they, are still more favoured in the development of function and

structure, and lead us insensibly to the verge of the animal "aristocracy," the VERTEBRATA.

Strangely enough, the aspect and contour of these fierce and formidable creatures, the highest of all Invertebrate animals, bring us back to the lowest; for a Cuttle-fish with its cylindrical body, its mouth at the extremity, and a circle of long flexible fleshy arms radiating around it, is (in form at least) just a Polype over again. There is, it is true, an immense difference in structure: the Cuttle is encased in a fleshy mantle, which is sometimes expanded into swimming fins, has a large head with staring eyes, a stout horny beak, like that of a parrot, of formidable power, and its arms are furnished with rows of sucking disks that act like cupping-glasses, and serve as so many instruments of prehension. Internally there is a shelly or horny plate which passes down through the substance of the mantle, and vestiges of a bony skeleton begin to appear in the form of a cartilaginous box which incloses the brain, and represents the skull of Vertebrate animals. Some species reside in an ample shell, as the Paper and Pearly Nautilus, both celebrated for their beauty.

A curious circumstance in the economy of these creatures is the secretion of a peculiar fluid of a most intense blackness, lodged in a vessel, variously situated in different species, and spouted out at the will of the animal. This substance, frequently called *ink*, from the use to which it was anciently applied, mixes freely with the water, diffusing an impenetrable obscurity for some distance around, by which the animal often escapes from danger; thus, as our illustrious Ray wittily remarked, hiding itself, like an obscure or prolix author, under its own ink.

And lest any of our readers should silyly add "*ecce signum!*" we will say no more about the MOLLUSCA at this present.

P. H. G.

OURSELVES.

THE SENSE OF SIGHT.

THE appendages to the Eye—the bony socket in which it moves: the apparatus for moving it: the verandah by which it is screened: the moveable curtain which protects, and spreads over it the fluid by which it is moistened and cleaned: the gland which pours out the liquid to lubricate it: the curiously formed channel for conveying away the redundant moisture; are beautifully adapted to their respective uses, and to subserve so delicate and exquisite an organ.

The *Eyebrows* not only help to screen the eyes from redundant light, as projecting eaves or the edge of a thatch does; but by the arrangement of the hairs of which they are composed, they keep off and direct away any particles of dust, or drops of acrid perspiration, which, if they got between the lids, would teaze, and irritate, and perhaps inflame, the sensitive organ.

The *Socket* or cavity, technically termed the *Orbit*, in which the Eyeball is contained, is made up of seven portions of different bones nicely dovetailed together. It is considerably larger than the globe of the eye; sufficient space being afforded for the muscles which move it, and for the padding of fat with which the walls are lined, and which forms a soft cushion on which it freely turns. For, at the ordinary temperature of the human body, 96° , this fatty material is not in a solid, but semifluid state, contained in membranous cells, which prevent its diffusion. An opening at the back part of the socket affords a passage for the optic nerve from the Brain, which passes forwards and perforates the globe

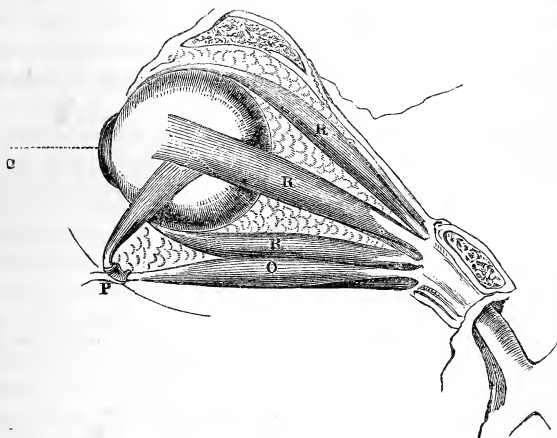
of the eye at the middle and back part. Around the margin of this opening, five of the muscles which move the eye take their origin. Four of these are called *Recti* or *strait muscles*,* and are named respectively *Rectus superior*, *inferior*, *externus*, *internus*. They are placed, as their names indicate, above, below, and at the sides of the eyeball, and end in broad tendinous expansions, on the fore-part of the outer coat of the eye. If one of them acts singly, it moves the eye upwards, downwards, outwards, &c., as the case may be: acting in succession, they roll it. The fifth muscle is termed the *Superior oblique*; with its fellow, the *Inferior oblique*, which, however, originates in another part of the orbit, it completes the muscular apparatus by which all the movements of the eyeball are performed. Besides the oblique motion which they confer, and besides helping to rotate the eye, they prevent the retraction of the eyeball towards the bottom of the orbit, when the strait muscles act simultaneously.† The *Superior oblique muscle* affords a

* Squinting arises from a disturbance of the “balance of power” among the strait muscles. The cure consists in dividing some of the fibres of that muscle which acts too strongly. It is a little difficult to determine to what extent the separation should be carried.

† An additional muscle, peculiar to quadrupeds, and of considerable power, especially in the horse, enables the animal, at will, to draw the eye so far back in the orbit as to be out of the reach of danger: and to bring into play, at the same time, a triangular-shaped cartilage, called by veterinary anatomists *the Haw*. In size and shape, too, this fits exactly the form of the eyeball. Under ordinary circumstances it is concealed at the inner angle of the orbit. But if the globe of the eye is drawn back, the Haw is forcibly squeezed out of its place, passed rapidly across the eye, and shovels away any foreign matter mixed with the tears; drawn back again by the protrusion of the eye forwards, it wipes it off as it passes along under the lids. An apparatus in birds, somewhat similar, is called the *Membrana nictitans*, the winking membrane. Its projection, however, is accomplished by a special muscle, and the return is produced by the elasticity of its cartilaginous tie.

very curious, and perhaps as remarkable an instance of design, as can be found in the whole human fabric. It arises, with the strait muscles, at the back part of the orbit; instead, however, of terminating at once, as they do on the ball of the eye, it ends in a long string-like tendon which passes through a ligamentous loop or pulley fixed in the upper and inner corner of the socket: then turning abruptly downwards and outwards, it is expanded on the outer and hinder part of the eyeball. When it acts alone, it turns the eye in a direction almost exactly the reverse of that which it would do in obedience to the law of muscular action, but for this happy contrivance.

The annexed sketch shows how the strait muscles



R R R, end upon the globe of the eye: and how the tendon of the oblique muscle, o, passes through the pulley at p, bends and terminates; c is the transparent cornea at the fore-part of the eye.

The *Eyelashes*, arranged on the outer line of the lids, are so nicely inserted that they curve outwards, and therefore do not interfere with each other when the eyes are shut. They prevent the intrusion of dust, insects, and other foreign substances into the eye, and help to shade it from too strong a light. On the margin of the lids, just within and among the lashes, numerous small glands are found; these pour out an oily secretion, which prevents the tears from flowing over unless the secretion is excessive. The outer edge of the lids is so accurately tooled, that when the eyes are shut no fluid can escape: but the inner edge of each is bevelled off; and when the lids are brought together they form, with the fore-part of the globe of the eye, a continuous triangular-shaped canal, which extends from the outer to the inner angle, or *canthus*, of the orbit. As the eyelids, in closing, meet always first at the outer corner, and their junction proceeds along the line of their edges toward the inner angle, all superfluous moisture is passed along this channel to the inner corner of the eye, where it accumulates, or rather would accumulate, but for the existence of two small openings, the orifices of two ducts, which convey it away. These openings can be readily seen, especially by the aid of a magnifying glass of very moderate power, at the inner end of each eyelid. They are termed the *puncta lachrymalia*. The two tubes are called the *lachrymal ducts*; they soon converge, and form one common passage, which descends through the bones of the nose, and ends on the surface of the nostrils, into which all the redundant secretion is finally conveyed. A small, round, red prominence, called the *Caruncula lachrymalis*, at the inner corner of the eye, assists in directing the fluid into the channels.

Two crescent-shaped plates of thin elastic cartilage, covered by the common integument, form the *Eyelids*. A circular muscle, the fibres of which are arranged circularly,

lies immediately under the skin: when it acts the eye is closed; a separate muscle, which arises from the upper and fore-part of the orbit, opens it.

Immediately within the lids a delicate transparent membrane originates, called the *Tunica conjunctiva*, the *conjunctive coat*. It is reflected backwards, lines the inner surface of the eyelids, then folds forwards, and covers the anterior part of the globe of the eye as far as the transparent cornea, round the edge of which it is thinned off and terminates. This membrane is most plentifully supplied with nervous *fibrillæ*; these confer on it that exquisite sensibility which gives such painful notice of the existence of any irritating matter on the surface of the eye, and such immediate warning of danger from without.

The anterior surface of the eye, termed the *transparent cornea*, and the conjunctive coat just noticed, are kept always moist, a condition necessary to their well-being, and to the discharge of their functions, by a supply of fluid continually poured out by the *lachrymal gland*. This gland, of an irregular shape, and about as large as a haricot bean, is lodged in a small hollow on the inner and upper side of the outer angle of the orbit. Several small ducts issuing from it open on the inner side of the eyelid; they convey the liquid by which the eye is lubricated, and which is spread over it by the act of winking. In an undue quantity it is called *tears*. These are educed either by any foreign matter which irritates the eye, or bodily pain, or some mental emotion.

The notice of their economy and physical uses; of the very remarkable manner in which they are mixed up with bodily suffering; and are indications of our feelings; the notice too of the *anatomy of the expression* of the appendages to the eye, which has received almost as much attention as the anatomy of their structure, must be reserved for a subsequent paper.

P. S.

PASSING AWAY.

THE infant lay on the mother's breast,
In the holy slumber of guileless rest :
It knew not the tempests of life's rough day —
Alas ! that such slumbers should pass away.

The children played on the village green,
And danced round the throne of their May-day Queen ;
As they merrily chanted their artless lay —
Alas ! that such gambols should pass away.

The lovers sat in the woodland dell,
Their soft, low whispers I may not tell :
Can ye not guess what those lips might say ?
Alas ! that such whispers should pass away.

The father stood by the home-fireside
And gazed on his children with joy and pride ;
And the mother taught them to kneel and pray —
Alas ! that such moments should pass away.

The old man sat in the old arm-chair,
A crown of glory his snow-white hair ;
And his children's children around him play —
Alas ! that such pleasures should pass away.

The body is borne to the silent tomb,
But the spirit rises above the gloom ;
It leaves the changes of earth for aye
For those joys which never shall pass away.

F. B.

THE WORKING MEN OF EUROPE.

FROM the Imperial printing-press of Paris there has just issued a folio of the finest type and the tallest size. Its author is Professor Le Play, and its object is to give some insight to the relative condition of the working-classes in all the countries of Europe. By way of *data* he has, through trustworthy sources, obtained the actual income and expenditure of thirty-six families of the labouring class, representing nearly all nationalities, and accompanied by a brief sketch of the history of each, and its present state economical, moral, and religious. Of course, the materials are too limited for any extensive induction; but the details are extremely interesting, and not a little instructive. Rescued from the statistical tables, and, as much as may be, relieved from arithmetical figures, we give the essence of three cases, by way of example.*

We begin with a Sheffield cutler. The father, thirty-eight years of age, is a native of Ireland, and has renounced Romanism without embracing Protestantism. His wife, a nominal Protestant, is too delicate to earn anything by labour. They have five children. They are extremely temperate, and the only beverage on which they spend money is a few shillings in summer manufacturing "pop" and treacle-beer. The yearly income of the family is about sixty-three pounds; and the principal items of expenditure are (roughly):—

* Besides M. Le Play's "*Les Ouvriers Européens*," those who wish to follow out the subject, will find valuable materials in "*Budgets Economiques des Classes Ouvrières en Belgique*," collected at the suggestion of the Statistical Congress, by M. Ducpetiaux.

Food	£32	0	0
Rent and fuel	10	10	0
Clothing	10	0	0
Education of three children	1	2	0
Charity	0	3	0
Benefit Society	2	10	0
Food for four pigeons and twelve canaries	2	0	0

This family possesses about 14*l.* worth of furniture. It saves nothing, and is a few pounds in debt. Its members have (including tea and a light supper) four meals a-day. Their dinner is meat, fried or roasted, with a pudding occasionally. The father neither drinks nor smokes, nor indulges in any gratification apart from his family. His canaries are his chief amusement. Christmas is the yearly holiday; besides which there are two fairs at Sheffield, when a few shillings are spent on playthings for the children. The mother seems to have no greater pleasure than to dress her children as nicely as her means allow, and then take them to visit their grand-parents.

Here is a respectable British household, with a temperate, home-loving father; and the whole family civil, contented, and attached to one another. Yet their enjoyments are merely material:—the daily meals culminating in the Sunday dinner. The pleasures of piety and those of cultivated intellect seem equally absent from their dwelling; and over it a constant danger impends,—for the inmates are in debt to nearly the full amount of their property, and live constantly up to their income. Nor does there appear the least desire to better their position, or “rise in the world.”

The next is a watchmaker of Geneva. The father is fifty years of age, and the mother fifty-three; their only child, a boy, is thirteen. The family belongs to the Calvinistic Church of the canton, and is animated by an unusual degree of religious fervour. It also exhibits an amount of

intelligence and of interest in modern discoveries unusual in the same class of society. The parents have subjected themselves to an extreme amount of privation in order to secure a college education for their son. The father is only a tolerable workman, and his earnings are 41*l.* a-year. The chief expenditure is—

Food	£22	0	0
Rent and fuel	7	15	0
Clothing	5	0	0
Education of the son	3	0	0
Snuff	0	5	0
Loan and purchase of books	1	0	0

The furniture of the household is worth about 17*l.* and they have an extensive library, chiefly consisting of theological and polemical treatises, with some interesting historical works and books of travel. They have four meals a-day,—their dinner consisting of soup with bread, or boiled vegetables, or occasionally butcher meat or fish. The chief recreation of the family is reading aloud to one another; and on the Sundays of summer, after public worship, they enjoy a walk together in the environs of the city; but incur no expense except on two or three occasions throughout the year.

Simple, temperate, devout, and eminently intelligent, with its love of books and its self-denying effort to educate the son for a learned profession, this is a family which commands respect. Its material well-being would be greater were the father a more skilful artisan and able to earn as much as some of his brother craftsmen. This family saves nothing; but if the son reward the efforts of his parents, he may be regarded as a provision for their old age, and the family will rise in his person.

In Geneva pastoral visitation is assiduously maintained, and M. Le Play attaches to it a great economical and

elevating value. It raises the man of industry in his own eyes; it prevents him from feeling isolated and hopelessly sundered from his superiors; and it inspires him with new strength for his struggle with the difficulties of his position. It often awakens sentiments which it is the tendency of poverty to extinguish; and the expectation of such visits helps to maintain the order and neatness of the dwelling.

Our last illustration is a Parisian rag-gatherer. The father is forty-seven years of age; his wife is forty-two; their daughter eight. They are of the Roman Catholic religion, with a leaning towards Protestantism. The father's conversation exhibits much intellectual elevation, with strong devotional feeling, and with a simplicity of faith seldom found among the working classes of the city. He has a little library of good books, containing "The Imitation of Christ," the Stories of Madame Guizot, and the Sermons and Tracts of Cæsar Malan, along with Romish and Protestant versions of the Scriptures. These he takes pleasure in reading to his family. His wife is a gentle and affectionate woman of limited intelligence; and they are both tenderly attached to their little girl, who, better dressed and better fed than her parents, attends a Protestant school, where the fees are paid by a charitable member of that persuasion. The income of the family is 28*l.* 9*s.* a-year, and their chief expenditure is—

Food	.	.	.	.	.	.	.	£18	6	0
Rent and fuel	.	.	.	.	.	.	.	4	16	0
Clothing	.	.	.	.	.	.	.	3	14	0
Eight yearly excursions to "The Barriers"								0	6	8
Snuff	.	.	.	.	.	.	.	0	15	0

The furniture, worth about 9*l.*, is plain, but it is carefully kept, and window-curtains, a sofa, a watch suspended on the wall, &c., may be considered luxuries, and together with the well-mended apparel of husband and wife, and the

neat dress of their daughter, it indicates a certain amount of taste and refinement. The family has only two meals a-day,—breakfast at nine and dinner at five; but the child has one meal extra. They have butcher meat only two days of the week. The wife is a constant invalid, but having learned dress-making in her youth, she keeps the attire of the household in the nicest repair, and there is nothing in the appearance of the apartment to indicate the daily pursuits of the owner. On Christmas and three other festivals, the family treats itself to a dish of cheese and macaroni with a pint of wine,—which are the only occasions in the year when wine is purchased. The usual beverage is a little water sweetened with sugar (*eau sucré*), taken before retiring to rest. They also, about eight times a-year, treat themselves to a little pic-nic in the country. This “chiffonnier” never enters a *café*, and he has no dealings with the other rag-gatherers. “The usual employment of his leisure is to amuse himself with his little daughter, or to read aloud the Bible or some religious book, interspersing extemporaneous reflections, which often indicate a deep knowledge of life and of the human heart. One of the greatest pleasures of the parents is to make from time to time a little present to their child.”

Probably this man is the best and the happiest of the 4000 “chiffonniers” of Paris. In connexion with his case the chief lamentation is, that, never having thoroughly learned a trade, he is an unskilled labourer, and is consequently doomed to a disagreeable employment, which, after all, only procures the most scanty means of subsistence.

In regard to the industrious classes of England, two circumstances have struck this intelligent observer,—the one, the propensity for intoxicating liquors; the other, the absence of the religious sentiment. In giving an account of a frugal family in Sheffield, who are saving money so as to

purchase, through a Land Society, a freehold estate, he remarks, "Recreations form no element in the routine of their family history. They may be reduced to the celebration of Christmas, and a visit to two fairs held at Sheffield. Throughout the year the wife may enjoy an occasional chat with her neighbours; and the husband, from time to time, take a walk with comrades as sober as himself. But it may be stated that the use and abuse of spirituous liquors form the fundamental recreation of English work-people, and that the small number who abstain from them do not find in the usages of the country any means of amusement." And in regard to religion he adds, "The almost total absence of the religious sentiment among the English artisans here described (chiefly connected with metallurgy), has not presented itself to the author in any other European country. That unfortunate result may be partly attributed to a deficiency in the numbers of the clerical body; and in the crowded centres of population there is no space reserved in the churches for the working classes. The parents in general show an absolute indifference to the religious direction given to the education of their children. Chance, which brings the family into the neighbourhood of a certain place of worship and a certain school, is usually the circumstance which chiefly influences its choice of a religious denomination." In keeping with which, he describes the Sheffield family last noticed: "The husband observes no religious worship, and seems hardly imbued with any religious sentiments. The wife had been at first, amidst the religious indifferentism of her parents, brought up in the Anglican Church; then she yielded to an impulse received from her father, who for a time became a fervent Methodist; and now she gives at intervals a lukewarm attendance at one of their chapels situated close by her dwelling. The little girl frequents an Anglican school for the sole reason that it is nearest their

residence, and she will probably be brought up in the Church of England, if some accident does not send her to a school of another description." In the same way, describing the family of a London cutler: "They only attend worship occasionally, and that in the evening, when the state of the weather does not permit walking in the Parks. They have no personal relations with the parochial clergyman; and when the wife's brother lay sick, two messages failed to bring the minister to the bed-side of the dying man, and he only arrived when his parishioner was at the last extremity."

We repeat, that M. Le Play had only limited opportunities of observation; but his facts, carefully compiled and candidly stated, should be thoughtfully pondered by every Christian citizen.

J. H.

REVIEW OF THE MONTH.

COMUS, or some waggish power, must have been tampering with Hippocrene, for it has turned our poets tipsy. In all our visits to Helicon we have never witnessed antics so strange among its sober *habitués*; and although the extraordinary excitement at first led us to hope that the tuneful choir was about to favour us with an unwonted outburst this year, we were not prepared for the scene that awaited us. The first whom we recognised was Sydney Yendys, who came up wringing his hands and tearing his hair, and who, mistaking us for a constable, begged that we would be good enough to take him into custody, as he had just murdered his wife and child, and was tempted to do something still more terrible. Turning for explanation to his friend, Alexander Smith, he told us that it was all quite true,—that he, and Yendys, and Tennyson, had enlisted, and had

been singing soldier-ballads all night in "The Apollo's Arms" over the way. "There he goes!" exclaimed our informant, pointing to a figure in a red coat waltzing down the mountain with a rather excited lady whom we mistook for Terpsichore, but whom he introduced to his comrades as Miss Maud. The military mood and the loud hurrahs of the martial bards rather tried our Quaker nerves, and made us glad to see at a little distance our gentle friend, Philip Bailey, pacing along in his own sequestered path; but although he was able to keep his feet, his speech was thick, and we could hardly make out a sentence he uttered. He began,—

"Initiate, mystic, perfected, epopt,
Illuminate, adept, transcendent;"

and addressing us as the

"Soul-compulsory power,
The god of psychopompous function,"

he showed us a dainty and delicate-looking volume, which, he said, he was taking from Parnassus to Piccadilly. We glanced over a few pages, but, although acquainted with Cudworth's "Intellectual System," and not altogether ignorant of German terminology, we soon found ourselves dead-beaten with the adjectives and metaphysics of "The Mystic."

Amidst so many extravaganzas, it is a relief and a rejoicing to find a true poem like "Hiawatha,"—a song which neither puzzles nor provokes. In this Indian legend Longfellow has struck out a new vein of poetry, and he has worked it finely. To European readers nothing can be fresher than the scenery and the mythology of this little epic, and there is a singular spell in the wild wind-music to whose accompaniment it is chanted. Passages like "The Famine," and "The Hunting of Pau-Puk-Keewis," are a new thing in literature; and although some may be startled

at first by the strange Indian names,—like “Niagara,” “Susquehana,” “Orinoco,” whose sound is now so charming,—it is curious to observe how soon the ear becomes enamoured of this old Transatlantic Tuscan.

To Dr. Angus we are indebted for an admirable edition of Butler’s “Analogy,” and his no less fruitful Sermons. With a clear analysis of every chapter, with a copious index, and with notes as brief as they are comprehensive, this is by far the most useful and convenient form in which we have seen our great apologist. The volume forms one of a series of cheap and carefully-edited text-books, in course of publication by the Tract Society, and from the masterly style in which Mr. Birks has supplemented Paley, and Dr. Angus has edited Butler, we would cordially recommend the series as invaluable additions to every young man’s library.

In a work entitled, “The Rational Creation: an Inquiry into the Nature and Classification of Rational Creatures, and the Government which God exercises over them,” the Rev. J. Brodie has given us a very clear and interesting sketch of the wide field of natural and revealed religion. With an observant eye and an orderly and independent mind, Mr. Brodie has observed not a few new and curious facts, and he has combined the results of his reading and research in a way that at once interests and instructs the reader; whilst the Christian value of the work is unspeakably enhanced by the ever-present identity in the author’s own mind of the God of Nature and the God of grace. Few possess the information displayed in a work like this, and few possess the piety: still fewer exhibit piety and information so happily conjoined.

We were disposed to think that the parsonages of Scotland and its recent religious history were a field which the story-writer had exhausted. But Mrs. Patterson’s “Dunellan Manse” arrests the judgment. A tale so lively and

so touching, so real and earnest, must have many readers ; and whilst it will soften many eyes, it is to be hoped that it will cure some prejudice and help to encourage some good soldiers in their lonely struggle.

Of late the war in China seems to have gone rather against the insurgents ; and in Canton and its neighbourhood the Imperialists have slaughtered thousands of victims, with details of cruelty characteristic of Chinese vengeance. Meanwhile the Gospel makes progress in the open ports. Including the children of Church-members, there are now in these towns 800 Christians ; and at Amoy, above 200 have been added to the Church in the course of a year.

The Sardinian soldiers in the Crimea are now in possession of some thousands of copies of the New Testament ; and from the avidity with which these are studied, there can be no doubt that they are destined to yield much fruit.

For upwards of a year Scotland has enjoyed the benefit of an Act which closes the public-houses on the Lord's day. The results are of the happiest description. In Edinburgh, the cases of drunkenness from eight o'clock on Sunday morning to the same hour on Monday morning, have decreased from a yearly average of 685 to 153. In Glasgow, during the first seven months of the working of the Act, there was a decrease of 3000 cases of drunkenness, and all crime was diminished. The outcry of the publicans is the best testimony to the good working of the measure.

From 1831 to 1842, the average of original works and reprints published in America was fifty-two per annum. In 1853, there were 733 new works published in the United States, of these 420 were original American works.

During the first half of the present year, 3879 works appeared in Germany.

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